Our Ref: NWP/MoJ/305414/TM05

8th October 2014

Community Well-being & Development
Wrexham County Borough Council
Lord Street
Wrexham
LL11 1LG

For the attention of Matthew Phillips

Dear Sirs

Application No. P/2013/0671: North Wales Prison

We are writing with regard to the above planning application and enclose information relevant to condition 9 of the reserved matters.

Please find attached a copy of the "Land Quality Statement : Areas 2 & 3" report produced by Hydrock. This details the contaminants identified on site for remainder of the site, Areas 2 & 3 and an outline remediation strategy

We would be grateful to receive your confirmation by 15th October 2014 that the attached remediation strategy is approved to allow the works within Areas 2 and 3 to commence.

Yours faithfully

TOM MAGUIRE
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North Wales Prison, Wrexham

Land Quality Statement: Areas 2 & 3

Final Report for

October 2014

Hydrock Ref: R/14656/004

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1	7th October 2014	Original Issue.
2	8th October 2014	Minor amendment to Drawing 14656/D006.

Hydrock Consultants Limited has prepared this report in accordance with the instructions of the above named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

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1.0 INTRODUCTION

1.1 Terms of Reference

In August 2014, Hydrock Consultants Limited (Hydrock) was commissioned by Lend Lease (the Client) to undertake a desk study and ground contamination assessment for part of the development site of the proposed North Wales Prison, off Bridge Road South, Wrexham Industrial Estate, Wrexham.

A site location plan (Drawing 14656/D001), a site survey plan (14656/D002) and a proposed development layout (14656/D003) are presented in Appendix A.

In total, the development site covers approximately 26.7ha and currently comprises an area of open, derelict land which until August 2014 was in large part covered in dense vegetation, although this has now been removed.

It is proposed to build a prison at the site, with the main prison buildings occupying the central and eastern parts of the site; car parking areas and auxiliary buildings in the northwest; and a large, rectangular area of ground in the southwest (the Expansion Zone) which will be walled and included in the grounds of the main prison building. Also included in the development scheme is a relatively small, landscaped area in the western corner of the site.

For the purposes of this assessment the site has been considered as three distinct areas:

- Car parking area in the northwest of the site and expansion zone in southwest of the site (combined) – Area 1
- Main prison building - Area 2
- Landscaped area in west of the site – Area 3

Planning Permission for the development has been issued by Wrexham County Borough Council (WCBC) which imposed the following Condition 9 in respect of contaminated land:

The reserved matters application shall include a scheme to deal with potential contamination at the site. This scheme shall include a phased investigation approach to identify the extent of contamination and any measures required to remediate the site, including post-development monitoring.

It was subsequently agreed with WCBC that this Condition could be discharged separately for the various areas of the site.

A submission for Area 1 has previously been issued and approved by WCBC. The findings of that assessment can be found in Hydrock report R/14656/002, dated 12th September 2014 (superseded by R/14656/002 version 2, dated 24th September 2014).

The parts of the site under consideration in this report for discharge of Condition 9 are Areas 2 and 3, as defined above.

1.2 Objectives

The objective of this report is to present the findings of a Phase I Desk Study, Phase II Site investigation, Risk Assessment and Outline Remedial Strategy for Areas 2 and 3, to allow WCBC to discharge Condition 9 for those areas and thereby allow works in those areas to commence.

In particular, the requirement is to assess the contamination status of the soils underlying Areas 2 and 3, to ensure that the soils are chemically suitable and will not pose a significant residual risk to human health for their respective end uses.

1.3 Scope

The scope of work for this commission comprises:

- a desk study and site walk-over reconnaissance to determine the nature of the site and its surroundings including current and former land uses, geology, hydrogeology, hydrology and geo-environmental data;
- a review of previous site investigation reports for the site, including a reassessment of past chemical soil testing results specific to the areas of the site under consideration (i.e. Areas 2 and 3);
- an assessment of the findings of two phases of ground investigation undertaken by Hydrock in August and September 2014; and
- reporting.

1.4 Information Provided

The following has been provided to Hydrock by Lend Lease for use in the preparation of this report:

- Travers Morgan Ltd: “Firestone Development Site, Wrexham”, reference 1W35245/contam, dated 31st May 1994;
- Various correspondence from Travers Morgan (and later Symonds Travers Morgan) to the Welsh Development Agency, including report summaries and recommendations for remediation;
- ESI Ltd: “Preliminary Risk Assessment, Former Firestone Site, Wrexham Industrial Estate”, reference 60895R1, dated December 2012;
- ESI Ltd: “Phase 2 Contaminated Land Investigation, Former Firestone Site, Wrexham Industrial Estate”, reference 60895R2, dated December 2012; and
- WYG Environment: “New Prison North Wales, Ground Investigation Factual Report”, Version 3, reference A083839, dated 14th January 2014.

2.0 PRELIMINARY INVESTIGATION (PHASE 1 STUDY)

The reports provided by the Client have been used as the basis for the following desk study for the site. In addition, historical maps have been acquired for the site by Hydrock in order to determine past site use and corroborate statements included in the various reports provided.

Note that the Phase I assessment contained herein covers the whole of the development area, apart from land to the southwest and southeast of the prison boundaries designated as a nature reserve. Features specifically relevant to Areas 2 and 3 are highlighted in the text.

2.1 Site Referencing

The site is referenced in Table 2.1.

Table 2.1: Site Referencing Information

Item	Brief Description
Site name	North Wales Prison Site, Wrexham.
Site location and grid reference	To the south of Bridge Road South, Wrexham Industrial Estate, Wrexham, Flintshire. The nearest postcode is LL13 3QA, and the approximate National Grid Reference of the site centre is 337900E, 349040N.

A site location plan is provided in Appendix A (Drawing 14656-D001).

2.2 Site Description and Walk-Over Survey

The current site conditions are summarised in Table 2.2.

Table 2.2: Site Description

Item	Brief Description
Site access	The primary access into the site is directly from Bridge Road South via locked steel double gates located on the northwest site boundary. Additional access is available from an unnamed service road serving Spectrum Business Park via locked steel double gates located in the southeastern site boundary.
Land area	The proposed development area extends to approximately 26.7 ha.
Elevation, topography etc.	The development site is approximately rectangular in plan, with the long axis trending northeast-southwest. It is largely flat across the majority of its area, although ground levels in the southwestern half of the site rise gently towards the southwest and south.
Site boundaries	The site boundaries are currently formed by steel palisade fencing on the northwestern, northeastern and most of the southeastern sides; by fencing and industrial units on the southwestern side; and by steel palisade fencing and open land on the southeastern side, with the River Clywedog approximately 200m to the south.
Geomorphic features	There are no notable geomorphic features at the site, other than a drain / stream that runs approximately north-south through the eastern part of the site.

Item	Brief Description
Present land use	The site represents brownfield land formerly occupied by a tyre factory and a Royal Ordnance Factory associated with the manufacture and storage of explosives. All surface structures and the vast majority of subsurface structures were removed following the closure and demolition of the facilities, and ground levels across the site were regraded to create the present day, essentially flat ground profile.
Vegetation	Until recently (August 2014) the site was in large part covered in dense vegetation, although this has now been removed to allow the various stages of ground investigation etc. to be undertaken.
Surrounding land	The site is located on the southern edge of Wrexham Industrial Estate. The development area is bound to the southwest, northeast and east by industrial units. To the southeast is open land leading down to the River Clywedog; this area is to remain undeveloped and will be retained as a nature reserve. A housing estate and industrial units are located to the northwest.

2.3 Site History

Hydrock have acquired and reviewed historical maps for the site, and the key points are summarised in Table 2.3 below.

Table 2.3: Site Description

Map Edition and Scale	Key Points
1872 (1:10,560) & 1872-73 (1:2,500)	The site is shown to be predominantly composed of a number of open fields with ponds of various size scattered throughout. A road runs northeast to southwest through the eastern half of the site, and a chapel, a farmhouse and associated farm buildings run in a line along the southern side of the road. In the southern part of the site a spur runs off the road towards the southeast.
1898 (1:10,560) & 1899 (1:2,500)	The buildings on the southern side of the internal road are indicated to include a smithy.
1909 & 1938 (1:10,560) & 1912 (1:2,500)	No significant change.
1949 (1:10,560)	All previous structures and roads on-site have been removed, and the site is now occupied by a large number of small (mostly c. 8m x 14m or smaller), widely separated buildings connected by a network of roads and served by numerous water hydrants. Three larger (c. 7m x 40m) buildings are located along the northeastern site boundary, each of which is bound on its northwestern, southwestern and southeastern sides by large bunds, presumably for blast protection, and another larger building (c. 8m x 30m) is located in the eastern corner of the site. The internal roads extend off-site and connect up to similar buildings which are located throughout the general area surrounding the site. It is known from other sources (see below*) that the structures occupying the site and the surrounding areas were part of a Royal Ordnance Factory (ROF) site that was established during the Second World War to manufacture and store explosives for munitions. However, the relatively small size of the majority of the buildings would suggest they were used for materials storage rather than any manufacturing processes. At this time (1949) at least part of this area, presumably including the site itself, was marked Wrexham Trading Estate, suggesting that the ROF facility had closed following the end of hostilities and the various buildings were now used for other purpose.

Map Edition and Scale	Key Points
1960-64 (1:10,560) & 1959-60 (1:2,500)	No significant change.
1976 & 1977-82 (1:2,500) & 1977-82 (1:10,000)	All but two of the structures formerly occupying the northwestern half of the site have been removed, and this area is now occupied by a large, elongate factory building (i.e. the Firestone Tyre Factory) surrounded by areas of open land, presumably representing roadways and areas of hardstanding for car and lorry parking, and possibly materials storage. The southeastern half of the site remains unchanged.
1983-89 (1:2,500)	No significant change.
1990-93 (1:2,500) & 1992 (1:10,000)	All of the former ROF structures, including the two relict buildings formerly located adjacent to the southeastern side of the tyre factory building, have gone, with the southeastern half of the site now shown to be open land. A large, rectangular building is now shown adjacent and parallel to the southeastern side of the main factory building in the northwest of the site.
1994 (1:2,500)	The site has been cleared of all structures to leave open land.
2002-2014 (1:10,000)	The site is shown to be open land, with a drain running approximately north-south through the eastern part of the site, as today.
* http://www.coflein.gov.uk/en/site/308980/details/MARCHWIEL+ROYAL+ORDNANCE+FACTORY,+WREXHAM/ http://en.wikipedia.org/wiki/Wrexham_Industrial_Estate http://www.theviewfromthenorth.org/rof-wrexham	

2.4 Unexploded Ordnance/Bombs

Due to the site's known past use as a Royal Ordnance Factory, qualified Explosive Ordnance Disposal Engineers were present throughout the excavation of the WYG trial pits and boreholes. In addition, selected soil samples recovered during both the ESI 2012 and WYG 2013 investigations were submitted for chemical testing to determine the presence of explosive substances and their constituent compounds, such as picric acid, nitroglycerine and 2,4,6-trinitrotoluene (TNT).

During the WYG investigation no traces of potential explosives were found within the excavations, and no explosives residues were detected in any of the ESI and WYG soil samples tested. As a consequence, it is considered that the risks from UXO at the site are low.

2.5 Geology

The general geology of the site area is shown on the 1:50,000 geological map of Wrexham (Sheet 121) and is summarised in Table 2.4.

Table 2.4: Geology

Stratigraphic Name	Age	Description
Glacial Till	Devensian	Typically clay and silt with variable amounts of sand, gravel and cobbles, and occasionally boulders, with common discontinuous lenses of sand and / or gravel.
Salop Formation	Westphalian D (Cisuralian Epoch)	Red and red-brown mudstone and sandstone containing beds of pebbly sandstone and conglomerate. Thin limestone beds and caliche in the lower part of the unit.

Given the known site history a variable thickness of Made Ground would be expected beneath most, if not all, of the site.

2.6 Mining or Mineral Extraction

The site is not located within an area where coal or other materials are known to have been mined by underground methods, and no quarries or pits are shown at, or within the immediate vicinity of, the site on the historical maps. Therefore hazards associated with shallow mining at the site are considered to be low.

2.7 Hydrogeology

The aquifer designations given in Table 2.5 are based on the Environment Agency interactive aquifer designation map. Additional information on the hydraulic characteristics of the geological units has been abstracted from Allen *et al* (1997) and Jones *et al* (2000).

Table 2.5: Hydraulic Characteristics of Strata

Stratum	Aquifer Designation	Hydraulic Characteristics
Made Ground	Unproductive strata	Moderate to high porosity because of unconsolidated nature, but permeability likely to be constrained to low where poor sorting and high clay content is present.
Glacial Till	Unproductive strata	Dominated by low permeability clay and silt which is interbedded with moderate to high permeability layers of sand with occasional gravel; overall, this unit is likely to be anisotropic in nature with horizontal permeability greater than vertical permeability (i.e. kh>kv).
Salop Formation	Secondary A aquifer	Rocks with permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Reference to the Environment Agency web site shows the following groundwater body beneath the site and the current chemical status (Table 2.6).

Table 2.6: Underlying Groundwater Body

Category	Label / Status
Waterbody ID	GB41101G202400
Waterbody name	Dee Permo-Triassic Sandstone
River basin district	Dee
Current quantitative status	Poor
Current chemical status	Good
Upward chemical trend	No
2015 predicted qualitative status	Poor
2015 predicted chemical status	Good
Overall risk	At risk
Protected area	Yes

The vast majority of the development site lies outside of any groundwater Source Protection Zones (SPZ). However, the whole of the southeastern edge of the development site lies within a SPZ III (total catchment) and SPZ II (Outer Catchment).

There is a single active groundwater abstraction in the vicinity of the site. This licence, Ref. WA/067/0007/006, is a modified version of an earlier licence and became active on 1/04/2012. It allows the abstraction of up to 131,400m^3 / annum or 600m^3 / day of groundwater from a 144m deep borehole located at the industrial unit immediately adjacent to the eastern corner of the site. The licence is due to expire on 31/03/2022.

2.8 Hydrology and Flooding

The surface water features in the vicinity of the site are listed in Table 2.7 and, where appropriate, are marked on the Site Zonation Plan in Appendix A.

Table 2.7: Surface Water Features

Feature	Location Relative to the Development Site
Drain	On-site, running from north to south through the eastern part of the site.
River Clywedog (Primary River)	Approximately 200m to the southeast.
Various drains	Located throughout the general area.

There are no licensed surface water abstractions within 1km of the site.

The site is in Flood Zone 1, with low probability of flooding. A Flood Zone 2 is located approximately 125m to the southeast of the development site, associated with the River Clywedog.

No further consideration of flood risk is undertaken in this report. Specialist flood risk advice should be sought with regards to drainage and flooding.

2.9 Previous Site Investigations

A number of ground investigations have been undertaken at the site by others, and are reviewed below.

2.10 Travers Morgan Report, May 1994

In May 1994 Travers Morgan issued a site investigation report (Ref. 1W35245/contam) which described two phases of ground investigation at the site undertaken by, or on behalf of, Travers Morgan, as well an earlier investigation undertaken in 1992 by Subsoil Surveys on behalf of JR Grimley Eve. The key points are summarised below.

2.10.1 1992: Subsoil Surveys

Travers Morgan described this investigation as comprising the drilling of 11 boreholes with laboratory testing. No further information is provided, and the report is not available for review.

2.10.2 November 1993: Travers Morgan

This investigation was undertaken by LTG Ground Engineering on behalf of Travers Morgan, and comprised the following:

- The drilling of 12 boreholes;
- The excavation of 81 trial pits and 10 trial trenches; and
- Laboratory soil and water testing;

The report concluded that there were isolated pockets of soil contamination across the northern part of the site, mostly within the upper 1m of ground.

2.10.3 March 1994: Travers Morgan

This investigation was undertaken to provide greater detail of the soil contamination identified during the November 1993 investigation, and included the excavation of 35 trial pits with chemical soil testing.

2.10.4 Comments

Neither the logs nor the chemical and geotechnical testing results from either of the Travers Morgan investigations were included in the copy of the report provided. However, even if present any such information would be of limited use for the following reasons:

- At the time of the Travers Morgan investigations (and the earlier Subsoil Surveys investigation) the Firestone Tyre Factory was still standing, albeit undergoing demolition. Consequently, the ground conditions that existed at that time were likely to be significantly different to those that exist today, particularly as a Site Investigation Summary report

prepared by Symonds Travers Morgan, dated 27/11/1995 (Ref. 35245/REP/04), confirmed that:

- the areas of soil contamination identified by the Travers Morgan investigations had been excavated and removed off-site, with "tips of Made Ground being regraded into low spots";
- the factory and all above ground structures had by then been demolished, and areas of hardstanding had been broken up and either removed from site (bituminous materials) or crushed and used as backfill; and
- buried structures, including foundations and services, had, as far as practical, generally been broken out to a depth of 3m below ground level (bgl).

- The chemical testing described in the report would today be considered to be inappropriate, both in its scope and in terms of the methodology used; for example, the testing would not be MCERTS accredited, which is a prerequisite for all modern day chemical soil testing when assessing risk to human health.

Given the above constraints, the Travers Morgan report is not considered further in this assessment.

2.11 ESI Phase 2 Contaminated Land Investigation Report 2012

The ESI ground investigation took place in October 2012, and involved the excavation of a total of 38 trial pits (as shown on Drawing 14656/D004, presented at Appendix A of this report). Of these, 12 were located within the development footprint of the prison (Area 2) and 4 were located in Area 3.

Laboratory chemical testing was undertaken on a total of 33 soil samples recovered during the investigation, of which 5 were taken from Area 2, and one of which was taken from Area 3.

A further 5 soil samples were tested for the presence of explosive residues, including nitroglycerine, nitrocellulose and picrate. One of these samples was taken from trial pit ESI-TP01, excavated in the eastern corner of Area 2.

Testing was also on groundwater samples recovered from 4 of the pits, although none of these were located within the development footprint of the prison.

The key findings of the ESI investigation are summarised below.

2.11.1 Ground Conditions – Area 2

Made Ground

The ESI investigation recorded Made Ground at all locations in Area 2, to depths of between 0.25m and 3.0m below ground level (bgl).

The Made Ground described fell into two broad classes:

- The majority of the Made Ground comprised demolition rubble, typically represented by varying amounts of gravel, cobbles and boulders of brick (including sections of brick walls) and concrete (including concrete slabs) in a matrix of ash and sand, occasionally clayey or very clayey, and locally also including asphalt, plaster, metal pipes, plastic, charcoal and rock; and
- The remainder of the Made Ground comprised sandy clay with generally small amounts of brick gravel or cobbles, and locally also including fragments of concrete, tile, asphalt, plaster and charcoal.

The thickness of the Made Ground, where proven, ranged from 0.25m to 3.0m, however at 3 locations (ESI-TP04, ESI-TP20 and ESI-TP38) the Made Ground was still present when the trial pits were terminated at depths of between 1.0m and 1.2m bgl, and consequently the true thickness of the Made Ground at these locations is not known.

Alluvium

Material interpreted by ESI as representing Alluvium was recorded directly below the Made Ground at 5 locations in Area 2 (ESI-TP03, ESI-TP15, ESI-TP24, ESI-TP27 and ESI-TP37) .

The Alluvium was described as typically comprising very soft to stiff, locally very sandy, clays or silts of various colours. Where present, the top of the Alluvium was recorded beneath the Made Ground at depths of between 0.25m and 1.3m bgl, and locally extended down to depths in excess of 1.4m bgl.

Glacial Till

The Glacial Till was encountered at the 4 locations where the Made Ground and / or Alluvium was fully penetrated, and typically comprised firm to stiff red-brown clay with occasional gravel and cobbles. Depths to the top of the Glacial Till in Area 2 ranged from 0.35m to 0.9m bgl.

2.11.2 Ground Conditions – Area 3

Made Ground

The ESI investigation recorded Made Ground at 2 of the 4 exploratory hole locations in Area 3, to depths of between 0.2m and 0.3m bgl. At ESI-TP07 the Made Ground comprised soft, red-brown, sandy clay with occasional gravel of brick, tile and concrete. At ESI-TP10 the Made Ground was represented by firm, red-brown, sandy clay with pockets of dark grey and black ash.

Glacial Till

The Glacial Till was encountered at all 4 locations, being present from surface at 2 of the locations (ESI-TP08 and ESI-TP09). The Glacial Till was described as stiff, locally sandy and / or gravelly, red clay.

2.11.3 Contamination Testing – Areas 2 and 3

The results of the chemical soil testing carried out by ESI can be summarised as follows:

- Low concentrations of metals were recorded in the Made Ground;
- Low concentrations of more environmentally persistent petroleum hydrocarbons were observed locally;
- Low concentrations of various PAH compounds were detected in approximately 33% of the samples tested;
- All other volatile organic compounds and semi-volatile organic compounds (VOCs and SVOCs) were less than their relevant laboratory limits of detection;
- All explosive compounds tested for were less than their relevant laboratory limits of detection; and
- No asbestos fibres were detected in any of the soil samples tested.

Given the significant thickness (c.40m) of low permeability clays underlying the site, the ESI report concluded that the low concentrations of some contaminants recorded in the shallow groundwater are unlikely to pose a risk to controlled waters.

Further assessment of the chemical soil testing results from the ESI investigation is undertaken in Section 3.0 of this report.

2.12 WYG Investigation 2013

The WYG investigation took place in November 2013 and the data acquired was presented in a Factual Report dated 14th January 2014. The WYG investigation included the following:

- The mechanical excavation of 18 trial pits, with in situ plate bearing and CBR testing at 6 of the trial pit locations;
- The mechanical excavation of a further 12 trial pits;
- The drilling of 19 boreholes with in situ geotechnical testing and 50mm diameter gas and groundwater monitoring standpipes in each borehole;
- The hand-excavation of 4 shallow pits;
- Laboratory soil and groundwater testing; and
- Gas and groundwater level monitoring.

A total of 24 of the WYG exploratory holes were located within Area 2, with a further 2 (WYG-TP10 and WYG-BH01) being located in Area 3.

The findings of the WYG investigation are summarised in the following sections.

2.12.1 Ground Conditions – Area 2

Made Ground

Made Ground was recorded at surface at all locations in Area 2.

The Made Ground predominantly comprised clay with varying amounts of sand and gravel, and locally also included cobbles and boulders. The sand locally included ash. Gravel and cobble components were predominantly brick, concrete, sandstone and mudstone, but locally also included metal, plastic, ceramic, clinker, limestone and coal. The boulders included concrete, sandstone and mudstone.

At 4 locations (WYG-BH9, WYG-BH10, WYG-BH10A and WYG-BH17) the Made Ground was represented by gravelly sand or sandy gravel with varying amounts of cobbles. The gravel component predominantly comprised brick, concrete, sandstone and mudstone, and locally also included plastic, metal, limestone and coal.

Where the base of the Made Ground was proven it was found to range in thickness from 0.2m to 2.2m. However, at one location, WYG-BH10, the borehole was terminated within the Made Ground at a depth of 4.6m bgl.

Glacial Till

The Glacial Till was recorded at all locations in Area 2 where the Made Ground was fully penetrated, at depths ranging from 0.3m to 2.2m bgl, although, as discussed above, in the area around WYG-BH10 it would be present at a depth in excess of 4.6m bgl.

The Glacial Till was indicated on the WYG logs to generally comprise firm to stiff, silty clay with varying amounts of gravel and localised lenses of clayey gravel or clayey sand.

Groundwater

Perched water was frequently encountered within the shallow Made Ground across the development site. Groundwater was generally absent, but where it was encountered within the Glacial Till the strikes were recorded at depths of between 2.3m and 13.0m bgl.

2.12.2 Ground Conditions – Area 3

Made Ground

Made Ground was recorded at surface at both WYG exploratory hole locations in Area 3.

At WYG-BH01 the Made Ground comprised slightly sand silty clay with gravel and cobbles of brick, concrete, sandstone, mudstone, ceramic and wood to a depth of 2.3m bgl.

At WYG-TP10 the Made Ground was present to 0.9m depth and comprised slightly sandy silty clay with gravel of brick, concrete, sandstone, mudstone, quartzite, plastic and wood, and cobbles of brick.

Glacial Till

The Glacial Till was recorded immediately beneath the Made Ground at both locations in Area 3, and comprised firm to stiff, slightly sandy, slightly gravelly, silty clay.

Groundwater

Perched water was encountered within the shallow Made Ground at depths of between 0.4m and 0.5m bgl.

2.12.3 Chemical Testing Results

The chemical testing results obtained by WYG during their 2013 site investigation and that are relevant to Areas 2 and 3 are assessed in Section 3.0.

2.12.4 Asbestos

Asbestos containing materials or loose asbestos fibres were recorded in a number of the soil samples recovered from Areas 2 and 3, as summarised in Table 2.8. The locations are shown on Drawing 14656/D004 in Appendix A.

Table 2.8: Asbestos, WYG 2013 Investigation

Location	Depth (m bgl)	Asbestos Results	Level
WYG BH9	0.5	Amosite, chrysotile	Quantifiable
	1.0	Amosite, chrysotile	Quantifiable
WYG BH17	0.2	Chrysotile	Trace
WYG BH10	1.0	Chrysotile	Quantifiable
WYG BH10A	0.5	Chrysotile	Quantifiable
	1.0	Amosite, chrysotile	Quantifiable
WYG BH12	0.5	Chrysotile	Trace
WYG TP17	0.5	Chrysotile	Quantifiable
	1.0	Chrysotile	Trace
WYG BH13	0.5	Chrysotile	Quantifiable
WYG BH14	1.0	Chrysotile	Quantifiable
WYG BH19	0.3	Chrysotile	Quantifiable
WYG HDP1	0.5	Chrysotile	Quantifiable
WYG HDP3	0.5	Chrysotile	Quantifiable
WYG HDP4	0.5	Chrysotile	Quantifiable

2.13 Hydrock Ground Investigations 2014

2.13.1 Introduction

A preliminary ground investigation was undertaken by Hydrock across the development area during August 2014. The preliminary investigation comprised the mechanical excavation of 30 trial pits, 24 of which were located in Area 2, and the drilling of 15 cable percussive boreholes, all of which were located in Area 2, with gas and groundwater monitoring standpipes in 10 of the boreholes, as shown on Drawing 14656/D004. It may be noted that as the locations of the August 2014 Hydrock exploratory holes were instructed by Tarmac Property Services (TPS) these exploratory holes have been prefixed “TPS”.

Shortly after the completion of the August 2014 a second phase of investigation was undertaken. The elements of those works relevant to the current assessment (i.e. relevant to the ground conditions in Areas 2 and 3) included:

- The excavation of 136 shallow trial pits, under the direct supervision of a third party specialist asbestos surveyor (REC Ltd) qualified to P402, specifically targeting areas previously identified as being affected by asbestos (marked as Zone 1, 2 and 3 on Drawing 14656/D007);
- The excavation of 16 trial pits, primarily for the purposes of geotechnical investigation, 3 of which were located within Area 3.

It may be noted that the focus of the REC trial-pit investigation was sampling for asbestos in the Made Ground in a previously investigated area. Consequently the records of the ground conditions encountered are limited in geological detail. Therefore, the following discussion uses only ground conditions data acquired directly by ESI, WYG and Hydrock.

2.13.2 Asbestos: Sampling Strategy

At Zone 1, a grid composed of 24 cells measuring 50m x 50m was set out on the ground, with 5 trial pits being excavated in each cell; one trial pit in each corner and one trial pit in the centre (Drawing 14656/D007). Shallow soil samples were recovered from each of the five trial pits and combined, using coning and quartering, to provide a composite sample. The composite sample from each cell was then submitted for laboratory analysis to determine the presence or otherwise of asbestos fibres.

Wherever the composite sample was found to contain asbestos fibres, the samples from the 5 constituent samples were subjected to similar analysis.

The samples were referenced as follows:

- For each sample taken from a cell, the five samples were labelled according to the cell of origin (e.g. A3) followed by a letter denoting the location (E for east, N for north, C for centre etc.);
- The composite sample for a particular cell was suffixed with “6th”; for example, C26th was the composite sample taken from cell C2;

In each of Zone 2 and Zone 3 a single cell was set out, designed to include the areas where ACM was recorded during the WYG 2013 investigation. Four trial pits were excavated on each of the

corners of the grid. For each sample taken from the cell, the four samples were labelled according to the zone number (e.g. Z3) followed by a letter denoting the location a, b, c and d.

In addition to this further trial pits were excavated in Zone 2 and Zone 3 to help strengthen the data set. These trial pits were designated A2a-d in Zone 2 and A3a-d in Zone 3.

In addition to the trial pits excavated by REC, a number of trial pits were also excavated by Hydrock to provide more data regarding the distribution of asbestos across Area 1 (i.e. the car parking area and the Expansion Zone) generally. To distinguish those trial pits from others previously excavated at the site by Hydrock, they contained the letters "ASB" in their names, e.g. HYD-ASB12, HYD-ASB13 etc.

Although these trial pits targeted Area 1 the results of the investigation are included here for completeness.

2.13.3 Ground Conditions – Area 2

The ground conditions recorded in Area 2 during the combined August and September Hydrock investigations are summarised below.

Made Ground

Made Ground was recorded from surface at all locations across Area 2. Where the depth of the Made Ground was proven it was found to range in thickness from 0.1m to 2.6m. However, at 4 locations the trial pits was terminated within the Made Ground at depths of 0.3m bgl (TPS-TP20, after a buried concrete slab was encountered) and at depths of between 2.2m and 2.8m bgl following collapse of the trial pits at TPS-TP24, TPS-TP25 and TPS-TP30.

The Made Ground was found to comprise sandy clay, locally a very clayey sand, with varying amounts of gravel comprising brick, concrete and sandstone, and locally also including metal and wood, and occasional cobbles of brick and concrete.

Glacial Till

The Glacial Till was recorded at all locations where the Made Ground was fully penetrated, and comprised firm to very stiff, silty clay with pockets of siltstone. Where encountered, the top of the Glacial Till was intercepted at depths of between 0.1m and 2.6m bgl.

2.13.4 Ground Conditions – Area 3

The ground conditions recorded in Area 3 during the combined August and September Hydrock investigations are summarised below.

Made Ground

Made Ground was recorded from surface at all four locations in Area 3. Where the depth of the Made Ground was proven it was found to range in thickness from 0.4m to 1.9m. Trial pit HYD-TP11 was terminated within the Made Ground at a depth of 1.8m bgl.

The Made Ground was generally found to comprise slightly sandy or sandy clay with varying amounts of gravel and cobbles including brick, concrete and quartzite. However, at HYD-TP11 a

layer of brown, clayey sand with gravel of brick, concrete and quartzite was recorded from 0.6m to 1.8m bgl.

Glacial Till

The Glacial Till was recorded at all locations where the Made Ground was fully penetrated, and comprised very stiff, silty clay with pockets of siltstone. Where encountered, the top of the Glacial Till was intercepted at depths of between 0.1m and 2.6m bgl.

Groundwater

No groundwater was encountered during the excavation of the exploratory holes, although perched water was recorded within the Made Ground at HYD-TP11 at a depth of 1.7m bgl.

2.13.5 Asbestos

During the site-wide August 2014 Hydrock investigation a number of the soil samples tested were found to contain asbestos containing materials or loose asbestos fibres. A sample recovered from TPS TP29, located in the area of the proposed car park in the northwest of the site (i.e. in Area 1) did not show visual evidence of asbestos fibres but subsequent testing proved it to contain 0.002 % w/w asbestos (initially identified as chrysotile but subsequently identified by a specialist laboratory as being amosite).

Further investigations were undertaken by Hydrock in September 2014 to acquire more data on the distribution of ACM in Area 1, and also to delineate the areas affected by ACM identified by WYG during their 2013 investigation.

The occurrence of asbestos (as confirmed by later laboratory testing) recorded during the Hydrock August and September 2014 investigations is summarised in Table2.9.

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Table 2.9: Asbestos, Hydrock 2014 Investigations

Location	Area	Depth (m bgl)	Asbestos Results	Level
TPS-TP29	1	0.3	Amosite	0.002%
HYD-ASB01		0.1	Chrysotile, amosite	0.014%
HYD-ASB09		1.0	Chrysotile	<0.001%
HYD-ASB012		0.5	Chrysotile	<0.001%
TPS-TP05		1.0	Chrysotile	Detected
HYD-TP03		0.3	Chrysotile	Identification only

Location	Area	Depth (m bgl)	Asbestos Results	Level (% w/w)
TPS-TP16	2	0.1	Chrysotile	Detected
TPS-TP18		0.3	Chrysotile, amosite	Detected
TPS-TP19		0.3	Chrysotile	Detected
TPS-TP22		0.2	Chrysotile	Detected
TPS-TP24		0.4	Chrysotile, amosite	<0.001%
TPS-TP25		0.5	Chrysotile, amosite	0.002%
TPS-TP30		0.3	Chrysotile	<0.001%
D16th		Not recorded	Chrysotile	<0.001%
D26th		Not recorded	Chrysotile	<0.001%
C26th		Not recorded	Chrysotile	0.001%
C56th		Not recorded	Chrysotile	0.002%
B46th		Not recorded	Chrysotile	0.001%
C46th		Not recorded	Chrysotile	0.001%
HYD-A2a		Not recorded	Chrysotile	0.001%
HYD-A2b		Not recorded	Chrysotile	0.01%
HYD-Z2a		Not recorded	Amosite	0.001
A36th		Not recorded	Amosite	0.002
A16th		Not recorded	Amosite	<0.001%
A3S		Not recorded	Chrysotile	<0.001%
A3E		Not recorded	Chrysotile	<0.001%
D4E		Not recorded	Chrysotile	Identification only
D5C		Not recorded	Chrysotile	Identification only
D5S		Not recorded	Chrysotile	Identification only
C5C		Not recorded	Chrysotile	Identification only
HYD-A3a		Not recorded	Chrysotile	<0.001%
HYD-A3b		Not recorded	Amosite	0.01
HYD-A3c		Not recorded	Amosite	<0.001%
A66th		Not recorded	Amosite	<0.001%
A56th		Not recorded	Amosite	0.001%
HYD-Z3b	3	Not recorded	Chrysotile	<0.001%
HYD-Z3c		Not recorded	Chrysotile	<0.001%
HYD-Z3d		Not recorded	Chrysotile	<0.001%

The laboratory asbestos testing certificates are included at Appendix 3.

3.0 LAND QUALITY ASSESSMENT FOR AREAS 2 & 3

3.1 Conceptual Model

3.1.1 Area 2

The various phases of ground investigation undertaken across the study site by ESI (2012), WYG (2013) and Hydrock (August and September 2014) has recorded Made Ground across the whole of Area 2. Where the base of the Made Ground was proven it was found to range in thickness between 0.1m and 2.6m, however deeper Made Ground (in excess of 4.6m bgl) was recorded at WYG-BH10 in the northeastern part of the site formerly occupied by the factory building.

The Made Ground typically comprised sandy clay with varying amounts of gravel and cobbles of brick, concrete, sandstone and mudstone. Locally, the Made Ground also included fragments of metal, plastic, timber, clinker, limestone, coal and ceramic, as well as boulders of concrete, sandstone and mudstone. At some locations the Made Ground was represented by gravelly sand or sandy gravel with varying amounts of cobbles. The gravel at these locations component predominantly comprised brick, concrete, sandstone and mudstone, and locally also included plastic, metal, limestone and coal.

At 6 locations within Area 2 where the Made Ground was penetrated it was found to overlie Alluvium, typically comprising sandy clay. The top of the Alluvium was recorded at depths ranging from 0.25m to 1.3m bgl.

Glacial Till, comprising firm to very stiff silty clay with occasional gravel and pockets of siltstone, was intercepted at all locations where the base of the Made Ground and Alluvium was fully penetrated, with the depths to the top of the Till ranging between 0.3m and 3.0m bgl across Area 2.

Perched water was frequently encountered within the shallow Made Ground across Area 2. Groundwater was generally absent, but where it was encountered within the Glacial Till the strikes were recorded at depths of between 2.3m and 13.0m bgl.

3.1.2 Area 3

Made Ground was recorded from surface at 8 locations in Area 3 to depths of between 0.2m and 2.3m bgl, and typically comprised sandy clay with varying amounts of gravel and cobbles of brick, concrete, sandstone, mudstone, quartzite, plastic and wood.

At all locations the Made Ground lay directly on the Glacial Till.

3.2 Preliminary Exposure Model

The preliminary exposure model is used for geo-environmental hazard identification and establishing potential contaminant linkages in line with the Statutory Guidance to Part 2A of the Environmental Protection Act 1990, also known as ‘potential pollution linkages’ in the Model Procedures of CLR11 (Environment Agency, 2004). This is based on the contaminant-pathway-receptor linkage approach.

3.2.1 Potential Contaminants

- Elevated concentrations of metals and polycyclic aromatic hydrocarbons (PAHs) in the shallow Made Ground;
- Asbestos containing materials and loose asbestos fibres in the shallow Made Ground;
- Possible elevated concentrations of metals within the natural soils.

Previous investigations have not identified significant petroleum hydrocarbon, SVOC or VOC contamination of the shallow soils at the site, and these contaminants are not considered further.

3.2.2 Potential Receptors

- Humans (site end-users and users of neighbouring premises);
- Development end use (buildings, utilities and landscaping);
- Surface water: various ponds to the southeast of the site and the River Clywedog 200m to the southeast.

It is assumed that the on-site drain currently running through the east of the site will be removed as part of the development, and will therefore not constitute a viable receptor post-development.

Due to the significant thickness of low permeability clay underlying the site groundwater in the underlying sandstones is not considered to be at risk from the shallow soils beneath the site.

3.2.3 Potential Pathways

- Humans: ingestion, skin contact, inhalation of dust and outdoor air;
- Humans; inhalation of indoor gases or vapours;
- Plant life: root uptake;
- Surface water: overland flow;
- Surface water: drainage discharge; and
- Buildings: direct contact with substances deleterious to building materials.

3.3 Chemical Soil Quality

It is understood that there may be small areas of Area 2 where soft landscaping may be present, including prison gardens for the growing of vegetables. In addition, although the end use of Area 3 is currently anticipated to be public open space, this area may eventually also be used as a prison garden for the growing of fruit and vegetables.

Therefore, when assessing the significance of the chemical soil testing results acquired during the ESI (2012), WYG (2013) and Hydrock (August 2014) investigations, both Area 2 and Area 3 have been assessed as a commercial end use, a public open space end use, and a residential with plant uptake end use to take into account any uncertainties in the final uses of the various parts of the site.

The results of the chemical testing undertaken on samples of soil recovered from the ESI, WYG and Hydrock exploratory holes located in Area 2 have been considered together and statistically analysed to determine the chemical quality of the Made Ground across this part of the site. Similarly, the results from the investigation works previously undertaken by ESI and WYG across Area 3 have also been assessed together.

The statistical analysis is presented in Appendix B and demonstrates that the shallow Made Ground in both Area 2 and Area 3 does not pose a risk to human health under any of the proposed end uses considered, and is therefore chemically suitable for its intended use.

3.4 Asbestos

3.4.1 Area 1

Additional sampling and testing has shown that the risk of encountering asbestos in Area 1 is low, with measureable quantities of asbestos being present at two places only (TPS-TP29 and HYD-TP03) in a total area of 11.3ha.

3.4.2 Area 2

Additional ground investigation works in Zone 1 and Zone 2 have demonstrated that asbestos contamination in Area 2 is not widespread, with most soil samples tested being found to contain either no asbestos or concentrations below 0.001% w/w.

At WYGTP20 a suspected asbestos pipe was found but this was not confirmed by a subsequent GPR survey for services.

Areas where asbestos concentrations at or above 0.001% w/w were recorded are shown on Drawing 14656/D006 in Appendix A.

3.4.3 Area 3

One of the trial pits excavated by REC Ltd in Zone 3, HYD-A3b, was found to contain 0.01% w/w of amosite. This trial pit was excavated very close to WYG-BH01, where asbestos was previously identified by WYG in 2013. All other soil samples taken from Area 3 contained concentrations of asbestos at or below 0.001% w/w.

3.5 Conclusion

The presence of asbestos in soils at concentrations greater than 0.001% w/w is considered to be a risk that requires mitigation and proposals to deal with this risk are presented in Section 4.

4.0 OUTLINE REMEDIATION STRATEGY

4.1 Context

The Land Quality Assessment presented in Section 4 shows that the only potentially unacceptable risks associated with Areas 2 and3 are those associated with asbestos. Those risks need to be assessed in the context of:

- The end use of Area 2 as a built environment;
- The end use of Area 3 as a grassed, landscaped area;
- The bulk earthworks requirements which will involve:
  - A top-soil strip; and
  - A cut and fill exercise in accordance with the bulk earthworks strategy to achieve site levels that accord with the planning application.

4.2 Outline Remediation Strategy

Risks associated with asbestos in soil relate entirely to the ability of the fibres to become airborne. Therefore, remediation is entirely related to preventing the release process from occurring and the following principles apply:

- During excavation and materials movement activities, soils will be dampened to inhibit release of fibres;
- Site operatives will be trained in respect of asbestos awareness to an extent that fully complies with the Control of Asbestos Regulations 2012.

In terms of materials placement the following criteria are proposed:

- Soils in the depth zone finished ground level to 1m depth must be characterised by 'below limit of detection' that is, < 0.001% w/w;
- Soils containing 0.1% w/w – 0.001% w/w asbestos are considered to be contaminated with asbestos and can only be re-used at depths >1m below finished ground level;
- The boundary between the clean material and the asbestos contaminated materials will be marked with a coloured geotextile to warn future ground workers. The geotextile marker will be a distinctive, clearly visible marker membrane which separates the soils with residual asbestos >1m depth from the shallower soils. There is a general preference for placing soils containing 0.1% w/w – 0.001% w/w asbestos where they will not be disturbed in the future. An accurate record of where such soils are placed must be kept in a health & safety file.
- Soils containing >0.1% w/w asbestos must be removed from site for disposal at an appropriate facility.
- provision will need to be made for hand picking of Asbestos Containing Materials where these are observed

These criteria have been used on similar sites to the satisfaction of the relevant local authority.

4.3 Materials Management Plan

The bulk earthworks will be carried out in accordance with a Materials Management Plan (MMP) prepared in accordance with the CL:AIRE Definition of Waste Code of Practice, signed off by a Qualified Person. The MMP will include provision for asbestos testing of soils to ensure that the criteria set out in Section 4.2 above are being met.

4.4 Validation

On completion the ground will be subject to testing to ensure that the criteria proposed in 4.2 above have been complied with. The scope of the validation testing will be agreed with the Local Authority before it is undertaken but a trial pit grid with testing on 75m centres and asbestos testing of soils is proposed.

A Validation Report will be submitted to the Local Authority for approval on completion.

5.0 UNCERTAINTIES AND LIMITATIONS

5.1 General Comments

This report details the findings of work carried out in August and September 2014. The report has been prepared by Hydrock on the basis of available information obtained during the study period. Although every reasonable effort has been made to gather all relevant information, all potential environmental constraints or liabilities associated with the site may not have been revealed.

The report has been prepared for the exclusive benefit of Lend Lease and those parties designated by them for the purpose of providing geotechnical and geo-environmental recommendations for the site. The report contents should only be used in that context. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

Hydrock has used reasonable skill, care and diligence in the design of the investigation of the site. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths of trial pits and boreholes at the time of the investigation. At intermediate locations, conditions can only be inferred.

Groundwater findings described are only representative of the dates on which they were made and levels may vary.

Information provided by third parties has been used in good faith and is taken at face value; however, Hydrock cannot guarantee its accuracy or completeness.

The work has been carried out in general accordance with recognised best practice as detailed in guidance documents such as the CLR 11 Model Procedures (Environment Agency 2004), BS 5930:1999 +A2:2010 and BS 10175:2011+A1:2013. Important aspects of the risk assessment process are transparency and justification. Where the phrase “suitable for use” is used in this report, it is in keeping with the terminology used in planning control and does not imply any specific warranty or guarantee offered by Hydrock.

The chemical analyses reported were scheduled for the purposes of risk assessment with respect to human health as discussed in the report. Whilst the results may be useful in applying the Hazardous Waste Assessment Methodology given in Environment Agency Technical Guidance WM2, they are not primarily intended for that purpose and additional analysis may be required should waste classification be required for consideration of off-site disposal of contaminated soils. Separate analyses will be required to meet the Waste Acceptance Criteria for specific landfill sites.

Unless otherwise stated, the chemical testing carried out for this report was not scoped to comply with the requirements of the water supply company and further work may be required.

The preliminary risk assessment process may identify potential risks to site demolition and redevelopment workers. However, consideration of occupational health and safety issues is beyond the scope of this report.

Please note that notwithstanding any site observations concerning the presence or otherwise of archaeological sites or invasive weeds such as Japanese knotweed, this report does not constitute a formal survey of these potential hazards.

Any site boundary line depicted on plans does not imply legal ownership of land.

6.0 REFERENCES

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Appendix A

Drawings

Drawings Included in this report:

14656-D001 – Site Location Plan

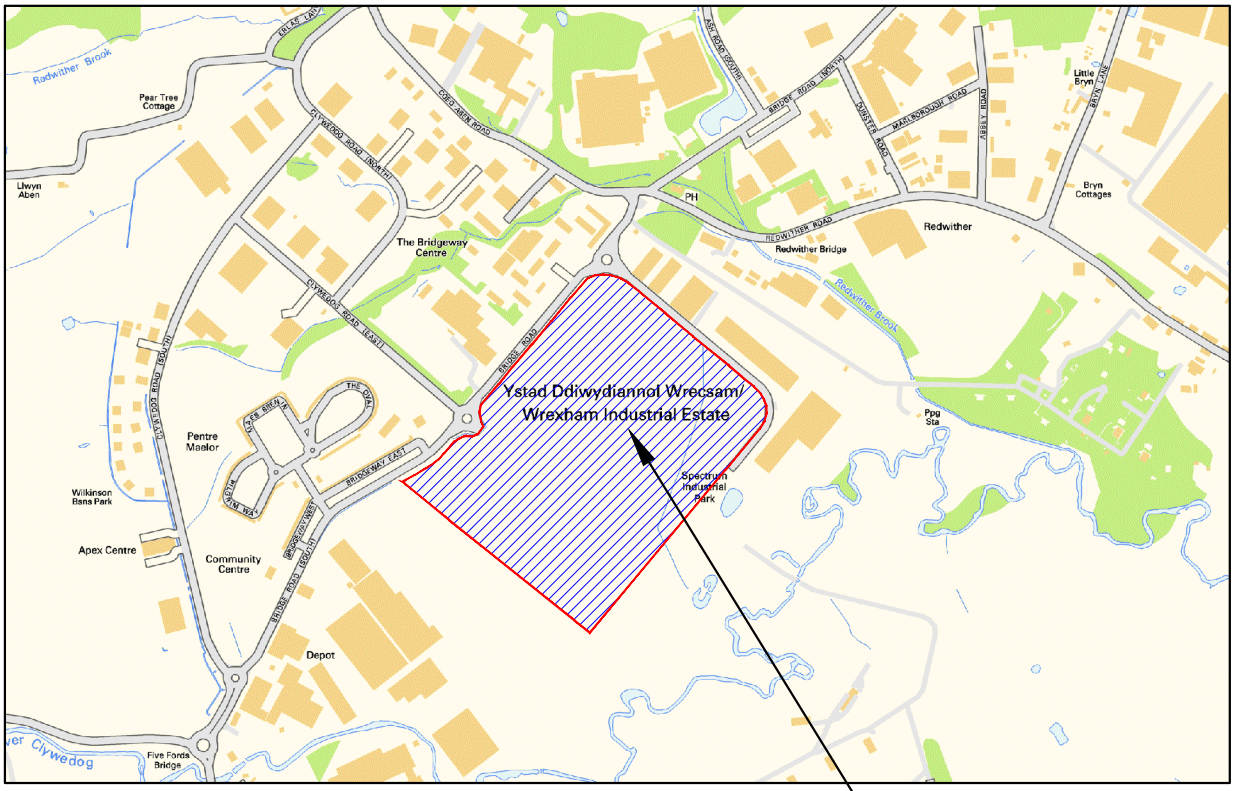
14656-D002 – Site Survey Plan

14656-D003 – Proposed Development Plan

14656-D004 – Ground Investigation Plan

14656-D007 – Asbestos Zones

14656-D006 – Asbestos Remediation Plan



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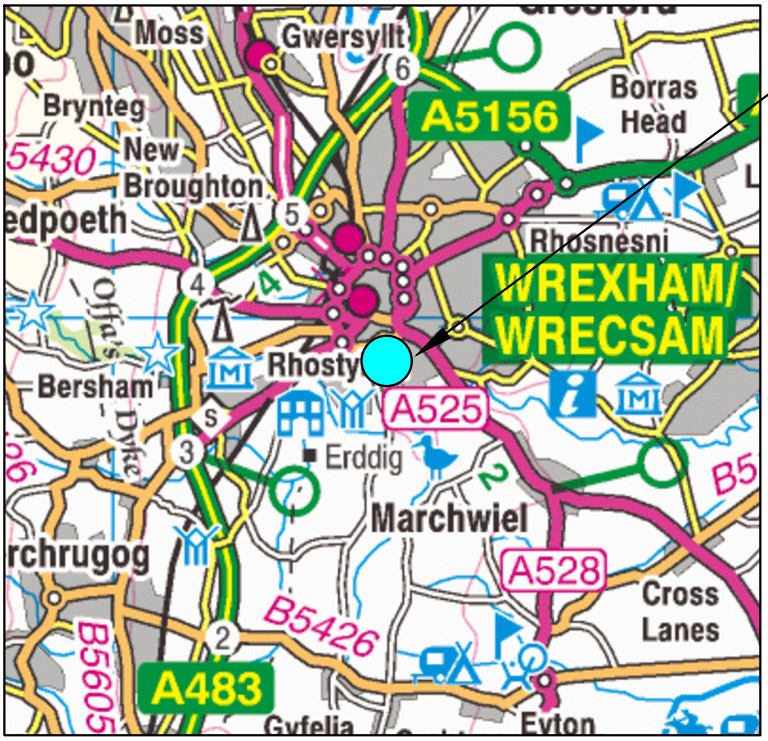

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Rev	Date	Description	By	Ckd
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Drawing Status: FINAL

Client : LEND LEASE

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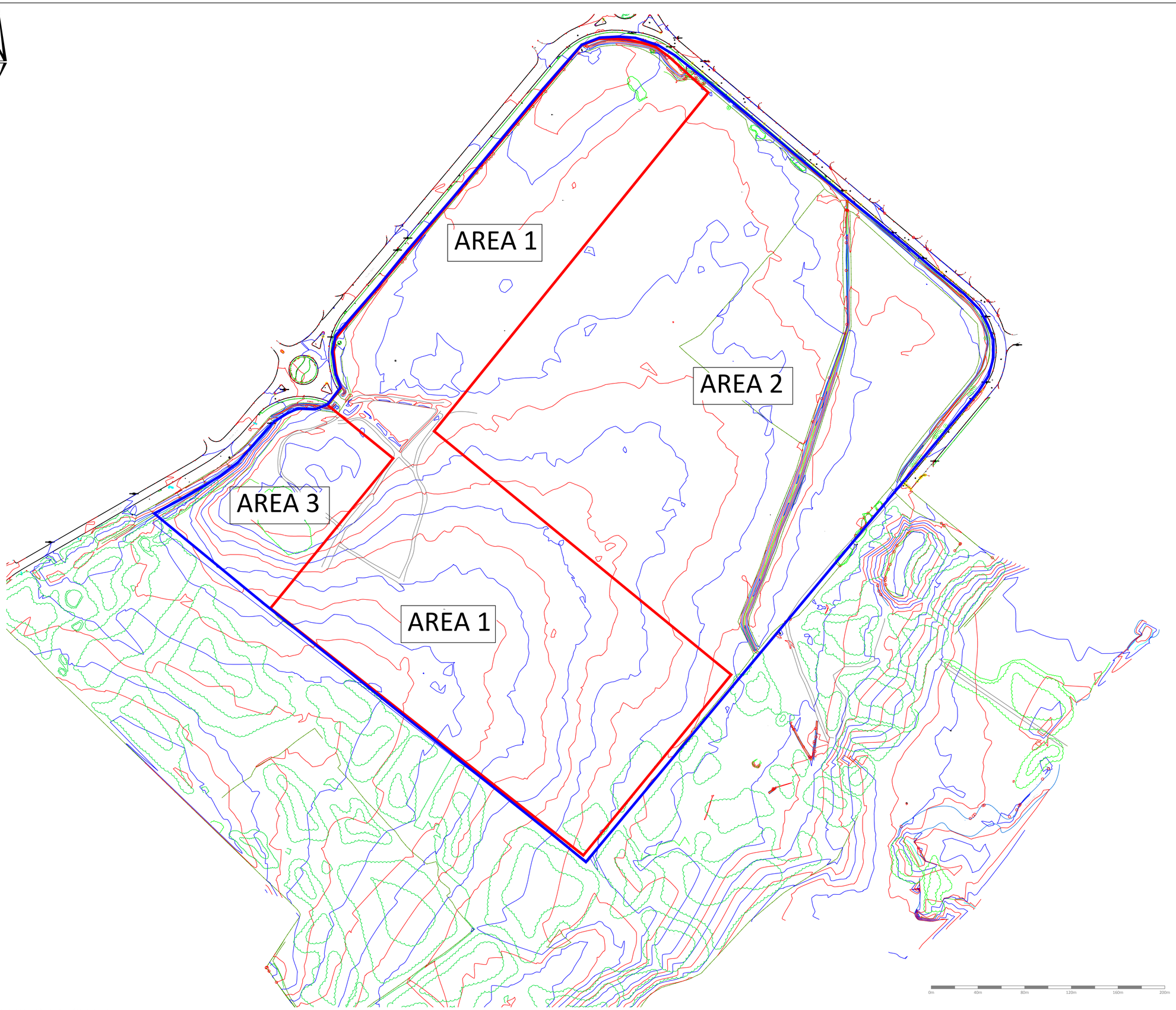
Drawing Title: Site Location Plan

Hydrock Job No: C/14656

Drawn	Checked	Scale @ A4	Date	Issue Date
LW	TW	AS SHOWN	12/09/14	12/09/14

Drawing Number: 14656/D001

Revision: A



Notes:

DEVELOPMENT FOOTPRINT AREA

AREA 1

Survey Key (Major Features)

Bushes

Minor Contours (0.5m)

Major Contours (1.0m)

Rev	Date	Description	By	Ckd
A	07/10/14	Areas added	LW	TW

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Project Title:

NORTH WALES PRISON

Drawing Title:

Site Survey Plan

Drawing Status:

Final

Hydrock Job No:

C/14656

Drawn	Checked	Scale @ A1	Date	Issue Date
RD	EC	As Shown	25/09/14	25/09/14

Drawing Number: 14656/D002

Revision: A

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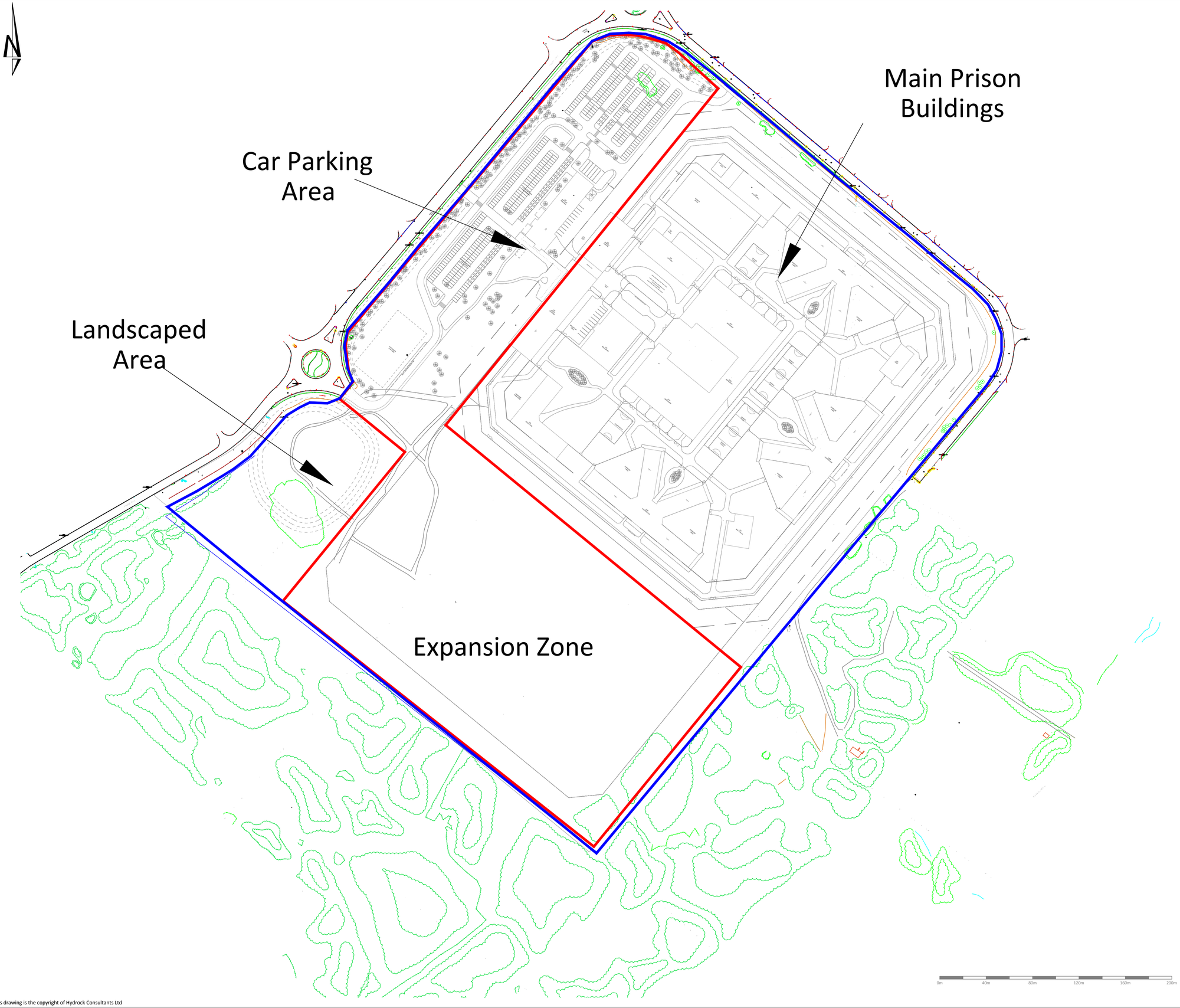

Notes:

DEVELOPMENT FOOTPRINT AREA

AREA 1

Survey Key (Major Features)

Bushes

Rev	Date	Description	By	Ckd
A	07/10/14	Slight Annotations	LW	TW

Architect :

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Project Title:

NORTH WALES PRISON

Drawing Title:

Proposed Development Plan

Drawing Status:

FINAL

Hydrock Job No: C/14656

Drawn	Checked	Scale @ A1	Date	Issue Date
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Drawing Number: 14656/D003

Revision: A

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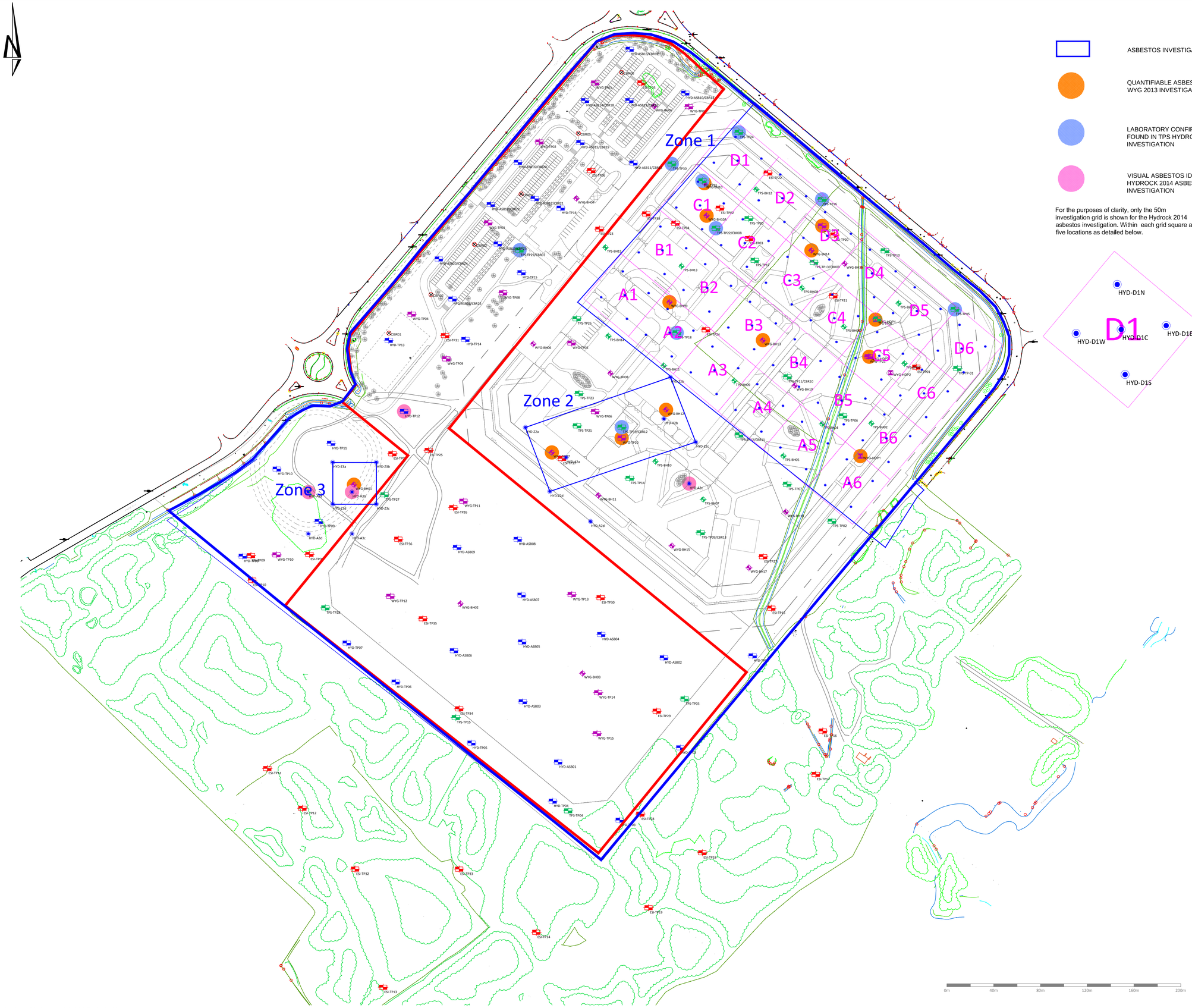

Notes:

- DEVELOPMENT FOOTPRINT AREA
- AREA 1
- ASBESTOS INVESTIGATION ZONE
- QUANTIFIABLE ASBESTOS FOUND IN WYG 2013 INVESTIGATION
- LABORATORY CONFIRMED ASBESTOS FOUND IN TPS HYDROCK 2014 INVESTIGATION
- VISUAL ASBESTOS IDENTIFIED IN HYDROCK 2014 ASBESTOS INVESTIGATION

For the purposes of clarity, only the 50m investigation grid is shown for the Hydrock 2014 asbestos investigation. Within each grid square are five locations as detailed below.

- HYD-E6 — HYDROCK ASBESTOS TRIAL PIT 2014
- HYD-TP01 — HYDROCK TRIAL PIT 2014
- HYD-ASB01 — HYDROCK ADDITIONAL ASBESTOS TRIAL PIT 2014
- HYD-ASB01/CBR013 — HYDROCK ADDITIONAL ASBESTOS TRIAL PIT 2014 AND CBR LOCATION
- CBR01 — CBR TESTING 2014
- TPS-TP05 — TPS HYDROCK TRIAL PIT 2014
- TPS-TP05/CBR01 — TPS HYDROCK TRIAL PIT 2014 AND CBR LOCATION
- TPS-BH07 — TPS HYDROCK BOREHOLE 2014
- WYG-TP17 — WYG TRIAL PIT 2013
- WYG-HDP2 — WYG HAND-DUG PIT 2013
- WYG-BH13 — WYG BOREHOLE 2013
- ESI-TP30 — ESI TRIAL PIT 2013

Survey Key (Major Features)

- Bushes

Rev	Date	Description	By	Ckd

Architect :

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Client : LEND LEASE

Project Title: NORTH WALES PRISON

Drawing Title: Asbestos Zones

Drawing Status: FINAL

Hydrock Job No: C/14656

Drawn	Checked	Scale @ A1	Date	Issue Date
LW	EC	As Shown	07/10/14	07/10/14

Drawing Number: 14656/D007

Revision: -

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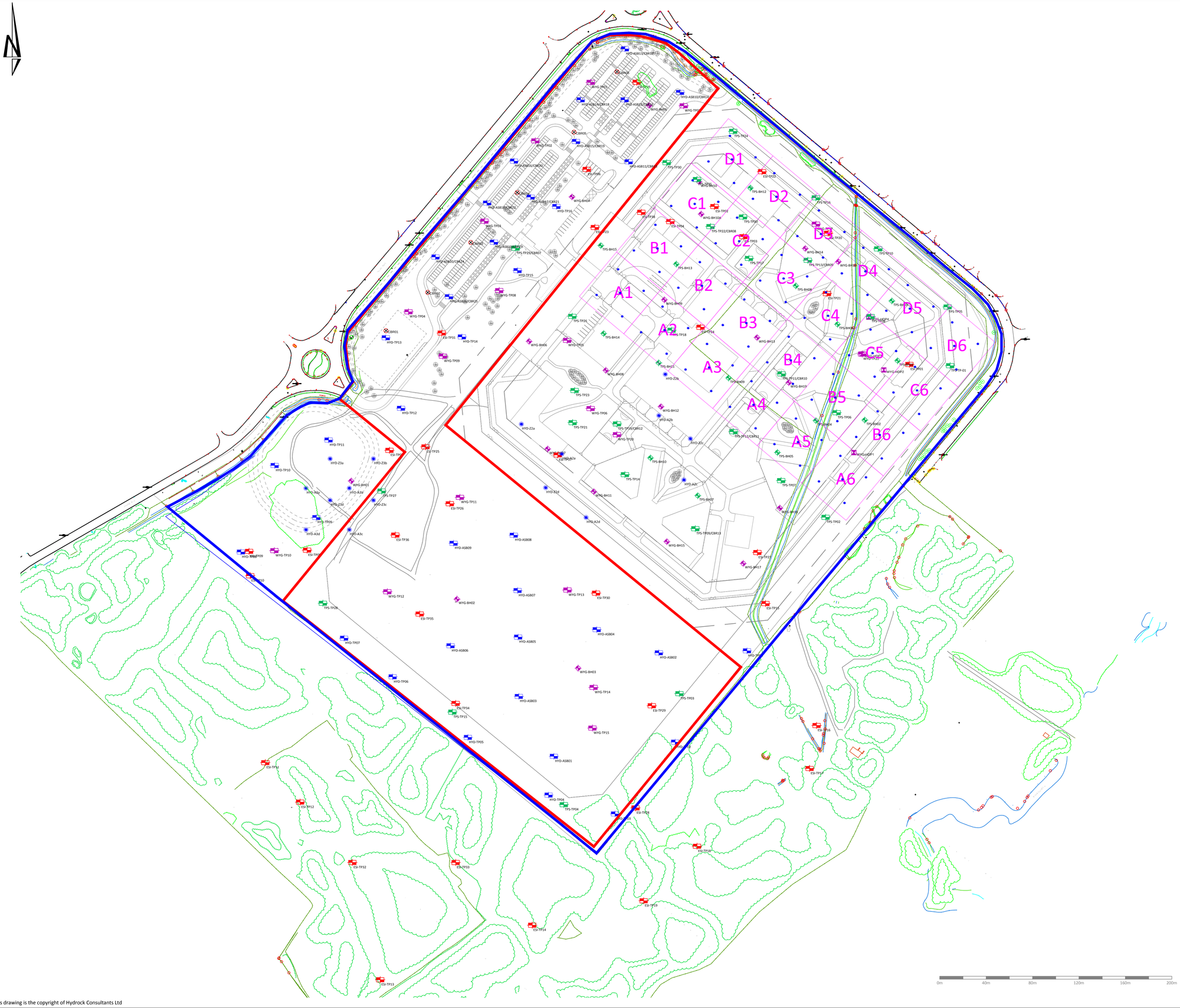

Notes:

	DEVELOPMENT FOOTPRINT AREA
	AREA 1
HYD-E6	HYDROCK ASBESTOS TRIAL PIT 2014
HYD-TP01	HYDROCK TRIAL PIT 2014
HYD-ASB01	HYDROCK ADDITIONAL ASBESTOS TRIAL PIT 2014
HYD-ASB01/CBR013	HYDROCK ADDITIONAL ASBESTOS TRIAL PIT 2014 AND CBR LOCATION
CBR01	CBR TESTING 2014
TPS-TP05	TPS HYDROCK TRIAL PIT 2014
TPS-TP05/CBR01	TPS HYDROCK TRIAL PIT 2014 AND CBR LOCATION
TPS-BH07	TPS HYDROCK BOREHOLE 2014
WYG-TP17	WYG TRIAL PIT 2013
WYG-HDP2	WYG HAND-DUG PIT 2013
WYG-BH13	WYG BOREHOLE 2013
ESI-TP30	ESI TRIAL PIT 2013

Survey Key (Major Features)

Bushes

Rev	Date	Description	By	Ckd

Architect :

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Client :

LEND LEASE

Project Title:

NORTH WALES PRISON

Drawing Title:

Ground Investigation Plan

Drawing Status:

Final

Hydrock Job No: C/14656

Drawn	Checked	Scale @ A1	Date	Issue Date
RD	EC	As Shown	25/09/14	25/09/14

Drawing Number: 14656/D004

Revision: -

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N.B. Other than areas highlighted, testing in Area 1 at 1 sample / 1000m³

Testing 1 sample per 500m³

Testing 1 sample per 500m³

Hydrock 2014 Asbestos Investigation

- Asbestos Detected <0.001% w/w
- 0.002 — Asbestos Detected (x.xx% w/w)
- 0.002% — Extent of area considered to be impacted with asbestos at w/w% shown
- 01 — Dust Monitoring Location

Notes:

- DEVELOPMENT FOOTPRINT AREA
- AREA 1
- HYD-E6 — HYDROCK ASBESTOS TRIAL PIT 2014
- HYD-TP01 — HYDROCK TRIAL PIT 2014
- HYD-ASB01 — HYDROCK ADDITIONAL ASBESTOS TRIAL PIT 2014
- HYD-ASB01/CBR013 — HYDROCK ADDITIONAL ASBESTOS TRIAL PIT 2014 AND CBR LOCATION
- CBR01 — CBR TESTING 2014
- TPS-TP05 — TPS HYDROCK TRIAL PIT 2014
- TPS-TP05/CBR01 — TPS HYDROCK TRIAL PIT 2014 AND CBR LOCATION
- TPS-BH07 — TPS HYDROCK BOREHOLE 2014
- WYG-TP17 — WYG TRIAL PIT 2013
- WYG-HDP2 — WYG HAND-DUG PIT 2013
- WYG-BH13 — WYG BOREHOLE 2013
- ESI-TP30 — ESI TRIAL PIT 2013

Survey Key (Major Features)

- Bushes

0m 40m 80m 120m 160m 200m

Rev	Date	Description	By	Ckd

Architect :

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Client : LEND LEASE

Project Title: NORTH WALES PRISON

Drawing Title: Asbestos Remediation Plan

Drawing Status: FINAL

Hydrock Job No: C/14656

Drawn	Checked	Scale @ A1	Date	Issue Date
RD	EC	As Shown	24/09/14	24/09/14

Drawing Number: 14656/D006

Revision: -

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Appendix B

Chemical Soil Contamination Results and Statistical Analysis

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Analytical Report Number : 14-58856

Replaces Analytical Report Number : 14-58856, issue no. 1

Project / Site name:	Wrexham Prison	**Samples received on:**	20/08/2014
Your job number:	C14656	**Samples instructed on:**	21/08/2014
Your order number:	C14656/S14369	**Analysis completed by:**	09/09/2014
Report Issue Number:	2	**Report issued on:**	15/09/2014
Samples Analysed:	20 soil samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	20	18	14	15
Total mass of sample received	kg	0.001	NONE	0.44	0.44	0.41	0.43	0.42
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile- Loose fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Detected
Asbestos Identification Name (Subcontracted)	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Quantification (Subcontracted)	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH	pH Units	N/A	MCERTS	6.5	6.6	6.8	7.3	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	< 1
Complex Cyanide	mg/kg	1	NONE	< 1	-	< 1	-	< 1
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	-	< 5.0	-	< 5.0
Total Sulphate as SO_4	mg/kg	100	ISO 17025	-	590	-	310	-
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	-	0.043	-	0.10	-
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	-	43	-	100	-
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.021	0.013	0.051	0.040
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	13.5	21.4	13.3	50.9	40.1
Sulphide	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Elemental Sulphur	mg/kg	20	NONE	-	< 20	-	< 20	-
Total Sulphur	mg/kg	100	NONE	-	270	-	110	-
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.020	< 0.0000	0.020	0.0048	0.0071
Total Organic Carbon (TOC)	%	0.1	MCERTS	2.0	< 0.1	2.0	0.5	0.7

Phenols by GC-MS

Phenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-	< 0.2
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-	< 0.2
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2,4-Dichlorophenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
2-Chlorophenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
4-Chloro-3-methylphenol	mg/kg	0.1	ISO 17025	< 0.1	-	< 0.1	-	< 0.1
4-Methylphenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols (GC-MS)	mg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.12	< 0.10	0.27
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.65	0.22	0.52
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.57	0.22	0.48
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.38	0.22	0.31
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.46	0.19	0.27
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.43	0.18	0.23
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.18	0.13	0.14
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.32	0.17	0.21
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	3.11	< 1.60	2.43
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	13	8.8	9.6	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.7	0.9	0.6	0.7	0.8
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	2.0	1.0	0.4	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.4	0.3	< 0.2	0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	22	31	18	24	32
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	31	18	24	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	25	22	25	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	54	74	50	42	42
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	32	22	33	34
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	42	23	27	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	85	120	71	63	88
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	8.5	9.8
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs TICs Compound Name		N/A	NONE	ND	ND	ND	ND	ND
VOC % Match	%	N/A	NONE	0	0	0	0	0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.12	< 0.10	0.27
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.65	0.22	0.52
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.57	0.22	0.48
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.38	0.22	0.31
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.46	0.19	0.27
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.43	0.18	0.23
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.18	0.13	0.14
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.32	0.17	0.21
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	Hexanedioic acid, bis(2-ethylhexyl) ester	Tridecane	Benz[e]acephenanthrylene	ND	Hexanedioic acid, bis(2-ethylhexyl) ester
SVOC % Match	%	N/A	NONE	93	97	95	0	95
SVOCs TICs Compound Name		N/A	NONE	-	Hexanedioic acid, bis(2-ethylhexyl) ester	Fluoranthene, 2-methyl-	-	-
SVOC % Match	%	N/A	NONE	-	92	94	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	Tridecane	-	-
SVOC % Match	%	N/A	NONE	-	-	93	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	Dodecane	-	-
SVOC % Match	%	N/A	NONE	-	-	92	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365439	365440	365441	365442	365443
Sample Reference				TPS-TP01	TPS-TP01	TPS-TP03	TPS-TP04	TPS-TP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.80	0.10	0.40	1.00
Date Sampled				12/08/2014	12/08/2014	18/08/2014	18/08/2004	12/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Glycols								
Ethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Propylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Triethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Propaniedol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,4 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Diethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Miscellaneous Organics								
Coal Tar	mg/kg	10	NONE	-	< 10.0	-	< 10.0	-

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	38	< 0.1	< 0.1	21	< 0.1
Moisture Content	%	N/A	NONE	7.1	15	22	8.0	20
Total mass of sample received	kg	0.001	NONE	0.49	0.39	0.49	0.46	0.44
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Identification Name (Subcontracted)	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Quantification (Subcontracted)	%	0.001	ISO 17025	-	-	-	-	-
General Inorganics								
pH	pH Units	N/A	MCERTS	7.8	7.6	7.6	7.7	7.6
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	< 1	-
Complex Cyanide	mg/kg	1	NONE	-	< 1	-	< 1	-
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	-	< 5.0	-	< 5.0	-
Total Sulphate as SO_4	mg/kg	100	ISO 17025	7900	-	870	-	620
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.13	-	0.11	-	0.082
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	130	-	110	-	82
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.066	0.081	0.054	0.070	0.041
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	65.5	81.0	53.7	70.2	41.2
Sulphide	mg/kg	1	MCERTS	1.9	-	2.0	-	< 1.0
Elemental Sulphur	mg/kg	20	NONE	< 20	-	< 20	-	< 20
Total Sulphur	mg/kg	100	NONE	2900	-	340	-	390
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.0043	0.016	0.013	0.011	0.025
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.4	1.6	1.3	1.1	2.5
Phenols by GC-MS								
Phenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2,4-Dichlorophenol	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-
2-Chlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-
4-Chloro-3-methylphenol	mg/kg	0.1	ISO 17025	-	< 0.1	-	< 0.1	-
4-Methylphenol	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols (GC-MS)	mg/kg	1	NONE	-	< 1.0	-	< 1.0	-

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.15	< 0.10	0.10	0.24	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	0.35	< 0.10	0.32	0.30	< 0.10
Pyrene	mg/kg	0.1	MCERTS	0.33	< 0.10	0.36	0.31	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.32	< 0.10	0.23	0.27	< 0.10
Chrysene	mg/kg	0.05	MCERTS	0.28	< 0.05	0.18	0.35	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.23	< 0.10	< 0.10	0.30	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.17	< 0.10	< 0.10	0.14	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	1.83	< 1.60	< 1.60	1.91	< 1.60
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	13	12	17	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.7	1.0	0.9	0.7	0.8
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	1.1	0.9	0.8	1.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.3	0.5	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	16	32	30	16	31
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	32	30	16	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	31	28	35	37
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	42	43	41	39
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	37	33	17	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	42	40	28	40
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	62	180	150	41	87
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	11	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	NONE	< 10	< 10	< 10	11	< 10
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs TICs Compound Name		N/A	NONE	ND	ND	ND	ND	ND
VOC % Match	%	N/A	NONE	0	0	0	0	0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.1	MCERTS	0.15	< 0.10	0.10	0.24	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.1	MCERTS	0.35	< 0.10	0.32	0.30	< 0.10
Pyrene	mg/kg	0.1	MCERTS	0.33	< 0.10	0.36	0.31	< 0.10
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.32	< 0.10	0.23	0.27	< 0.10
Chrysene	mg/kg	0.05	MCERTS	0.28	< 0.05	0.18	0.35	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.23	< 0.10	< 0.10	0.30	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.17	< 0.10	< 0.10	0.14	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs TICs								
SVOCs TICs Compound Name		N/A	NONE	Tridecane	Eicosane	Dodecane	Tridecane	Tridecane
SVOC % Match	%	N/A	NONE	95	93	93	97	93
SVOCs TICs Compound Name		N/A	NONE	Naphthalene, 2,3,6-trimethyl-	-	Tridecane	Naphthalene, 1,4-dimethyl-	Hexanedioic acid, bis(2-ethylhexyl) ester
SVOC % Match	%	N/A	NONE	92	-	95	91	97
SVOCs TICs Compound Name		N/A	NONE	-	-	Phenanthrene, 2-methyl-	-	-
SVOC % Match	%	N/A	NONE	-	-	95	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	Phenanthrene, 4-methyl-	-	-
SVOC % Match	%	N/A	NONE	-	-	92	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	Phenanthrene, 3,6-dimethyl-	-	-
SVOC % Match	%	N/A	NONE	-	-	92	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	Anthracene, 1,4-dimethyl-	-	-
SVOC % Match	%	N/A	NONE	-	-	92	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	Diisooctyl adipate	-	-
SVOC % Match	%	N/A	NONE	-	-	99	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365444	365445	365446	365447	365448
Sample Reference				TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.30	0.30	1.10	0.20
Date Sampled				12/08/2014	18/08/2014	18/08/2014	15/08/2014	11/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Glycols								
Ethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Propylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Triethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Propaniedol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,4 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Diethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Miscellaneous Organics								
Coal Tar	mg/kg	10	NONE	< 10.0	-	< 10.0	-	< 10.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	24
Moisture Content	%	N/A	NONE	22	22	11	4.2	13
Total mass of sample received	kg	0.001	NONE	0.40	0.41	0.44	0.18	0.46
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile- Others (fibres in bitumen)	Chrysotile, Amosite Loose fibres	Chrysotile- Insulation lagging	Chrysotile- Loose fibres, Insulation lagging, Hard/cement type material, Others(fibres in bitumen)
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Detected	Detected	Detected
Asbestos Identification Name (Subcontracted)	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Quantification (Subcontracted)	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH	pH Units	N/A	MCERTS	7.6	7.5	7.6	7.7	7.6
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	< 1
Complex Cyanide	mg/kg	1	NONE	< 1	-	< 1	-	< 1
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	-	< 5.0	-	< 5.0
Total Sulphate as SO_4	mg/kg	100	ISO 17025	-	1600	-	1100	-
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	-	0.22	-	1.2	-
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	-	220	-	1200	-
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.037	0.11	0.052	0.61	0.54
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	36.7	109	52.0	610	542
Sulphide	mg/kg	1	MCERTS	-	31	-	1.6	-
Elemental Sulphur	mg/kg	20	NONE	-	< 20	-	< 20	-
Total Sulphur	mg/kg	100	NONE	-	740	-	600	-
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.031	0.029	0.0079	0.0030	0.0090
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.1	2.9	0.8	0.3	0.9

Phenols by GC-MS

Phenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-	< 0.2
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2	-	< 0.2
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2,4-Dichlorophenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
2-Chlorophenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3	-	< 0.3
4-Chloro-3-methylphenol	mg/kg	0.1	ISO 17025	< 0.1	-	< 0.1	-	< 0.1
4-Methylphenol	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols (GC-MS)	mg/kg	1	NONE	< 1.0	-	< 1.0	-	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.11	0.14	0.18	0.17	1.2
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.37
Fluoranthene	mg/kg	0.1	MCERTS	0.28	0.62	0.26	0.41	3.0
Pyrene	mg/kg	0.1	MCERTS	0.24	0.58	0.25	0.38	2.7
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.18	0.39	0.18	0.34	2.2
Chrysene	mg/kg	0.05	MCERTS	0.20	0.58	0.20	0.28	1.7
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	0.59	0.22	0.34	2.4
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	0.37	0.11	0.24	1.5
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	0.59	< 0.10	0.34	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.1
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.1
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	3.86	< 1.60	2.50	19.7
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	7.5	7.9	10	7.6
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.8	0.8	0.4	0.4	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	1.7	2.5	0.4	1.6	2.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8	0.3	0.5	0.5	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	27	21	20	19	42
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	21	20	19	42
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	28	35	32	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	76	63	120	68	68
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	31	22	16	20	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	37	24	25	41
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	140	130	100	130
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	2.2	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	13	23	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	17	140	48	130	43
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	NONE	17	140	60	150	43
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	47	< 8.4	17	12
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	15	< 10	< 10	24
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	13	150	37	57	74
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	120	24	33	36

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs TICs Compound Name		N/A	NONE	ND	ND	ND	ND	ND
VOC % Match	%	N/A	NONE	0	0	0	0	0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.1	MCERTS	0.11	0.14	0.18	0.17	1.2
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.37
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.1	MCERTS	0.28	0.62	0.26	0.41	3.0
Pyrene	mg/kg	0.1	MCERTS	0.24	0.58	0.25	0.38	2.7
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.18	0.39	0.18	0.34	2.2
Chrysene	mg/kg	0.05	MCERTS	0.20	0.58	0.20	0.28	1.7
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	0.59	0.22	0.34	2.4
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	0.37	0.11	0.24	1.5
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	0.59	< 0.10	0.34	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.1
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.1

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs TICs								
SVOCs TICs Compound Name		N/A	NONE	Tridecane	1-Hexacosene	Tridecane	Dodecane	Naphthalene, 2,3,6-trimethyl-
SVOC % Match	%	N/A	NONE	95	96	94	93	96
SVOCs TICs Compound Name		N/A	NONE	10,18-Bisnorabieta-8,11,13-triene	1,6,10-Dodecatriene, 7,11-dimethyl-3-methylene-, (E)-	2-Dodecen-1-yl(-)succinic anhydride	Tridecane	Phenanthrene, 1-methyl-
SVOC % Match	%	N/A	NONE	94	95	92	94	92
SVOCs TICs Compound Name		N/A	NONE	-	1-Nonadecene	Eicosane	Tetradecane	Anthracene, 1-methyl-
SVOC % Match	%	N/A	NONE	-	95	94	93	93
SVOCs TICs Compound Name		N/A	NONE	-	Trispiro[4.2.4.2.4.2.]heneicosane	Hexanedioic acid, bis(2-ethylhexyl) ester	1-Docosene	Pyrene, 1-methyl-
SVOC % Match	%	N/A	NONE	-	95	93	92	97
SVOCs TICs Compound Name		N/A	NONE	-	Dodecane	-	Heptadecane	Hexanedioic acid, bis(2-ethylhexyl) ester
SVOC % Match	%	N/A	NONE	-	91	-	92	93
SVOCs TICs Compound Name		N/A	NONE	-	Tetradecane	-	Hexadecane, 1-chloro-	Triphenylene, 2-methyl-
SVOC % Match	%	N/A	NONE	-	91	-	91	93
SVOCs TICs Compound Name		N/A	NONE	-	Benzo[e]pyrene	-	Hexanedioic acid, bis(2-ethylhexyl) ester	Benzo[e]pyrene
SVOC % Match	%	N/A	NONE	-	91	-	95	97
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	Dibenzo[def,mno]chrysene
SVOC % Match	%	N/A	NONE	-	-	-	-	96
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	Antra-9,10-quinone, 1-(3-hydrohy-3-phenyl-1-triazenyl)-
SVOC % Match	%	N/A	NONE	-	-	-	-	91

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365449	365450	365451	365452	365453
Sample Reference				TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.30	0.30	0.20
Date Sampled				15/08/2014	11/08/2014	15/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Glycols								
Ethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Propylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Triethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Propaniedol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,4 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Diethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Miscellaneous Organics								
Coal Tar	mg/kg	10	NONE	-	< 10.0	-	< 10.0	-

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	22	18	18	13	13
Moisture Content	%	N/A	NONE	4.1	3.2	4.5	5.9	6.1
Total mass of sample received	kg	0.001	NONE	0.49	0.54	0.52	0.52	0.53

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile, Amosite Loose fibres	Chrysotile- Loose fibres, Amosite- Insulation lagging	-	Chrysotile- Loose fibres	Chrysotile- Loose fibres
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Not-detected	Detected	Detected

Asbestos Identification Name (Subcontracted)	Type	N/A	ISO 17025	No Asbestos Detected	Amosite - Loose Insulation	-	Amosite - Free Fibres	No Asbestos Detected
Asbestos Quantification (Subcontracted)	%	0.001	ISO 17025	<0.001	0.002	-	0.002	<0.001

General Inorganics

pH	pH Units	N/A	MCERTS	7.8	7.9	8.0	7.9	7.8
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	-	< 1
Complex Cyanide	mg/kg	1	NONE	-	< 1	-	-	< 1
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Thiocyanate as SCN	mg/kg	5	NONE	-	< 5.0	-	-	< 5.0
Total Sulphate as SO_4	mg/kg	100	ISO 17025	520	-	700	840	-
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.020	-	0.30	0.050	-
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	20	-	300	50	-
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.010	0.016	0.15	0.025	0.012
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.0	16.3	151	25.2	12.3
Sulphide	mg/kg	1	MCERTS	2.1	-	< 1.0	2.7	-
Elemental Sulphur	mg/kg	20	NONE	< 20	-	< 20	< 20	-
Total Sulphur	mg/kg	100	NONE	180	-	250	430	-
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.0032	0.0042	0.0006	0.0073	0.015
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.3	0.4	< 0.1	0.7	1.5

Phenols by GC-MS

Phenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2,4-Dichlorophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
2-Chlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
4-Chloro-3-methylphenol	mg/kg	0.1	ISO 17025	-	< 0.1	-	-	< 0.1
4-Methylphenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols (GC-MS)	mg/kg	1	NONE	-	< 1.0	-	-	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	< 1.60	< 1.60	< 1.60
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.7	4.1	17	5.7	9.4
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.3	0.2	0.3	0.2	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.5	< 0.2	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.2	< 0.2	0.5	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	18	14	13	16	49
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	14	13	16	49
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	17	110	19	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	25	27	140	47
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	13	18	12	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	14	17	15	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	51	40	49	86	120
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	9.9	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	13	< 8.0	46	19
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	NONE	< 10	13	< 10	56	19
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	32	12
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	21	19

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs TICs Compound Name		N/A	NONE	ND	ND	ND	ND	ND
VOC % Match	%	N/A	NONE	0	0	0	0	0

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs TICs								
SVOCs TICs Compound Name		N/A	NONE	Tridecane	ND	Tridecane	Eicosane	Tetradecane
SVOC % Match	%	N/A	NONE	92	0	93	96	91
SVOCs TICs Compound Name		N/A	NONE	Diisooctyl adipate	-	-	Trispiro[4.2.4.2.4.2.]heneicosane	1-Nonadecene
SVOC % Match	%	N/A	NONE	97	-	-	92	93
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	Pentacosane
SVOC % Match	%	N/A	NONE	-	-	-	-	91
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	1,1'-Biphenyl, 2,3,3',4,4',5-hexachloro-
SVOC % Match	%	N/A	NONE	-	-	-	-	95
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	1,1'-Biphenyl, 2,2',3,4,4',5',6-heptachloro-
SVOC % Match	%	N/A	NONE	-	-	-	-	94
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-
SVOCs TICs Compound Name		N/A	NONE	-	-	-	-	-
SVOC % Match	%	N/A	NONE	-	-	-	-	-

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Analytical Report Number: 14-58856

Project / Site name: Wrexham Prison
Your Order No: C14656/S14369

Lab Sample Number				365454	365455	365456	365457	365458
Sample Reference				TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP29	TPS-TP30
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.50	0.50	0.30	0.30
Date Sampled				15/08/2014	15/08/2014	12/08/2014	15/08/2014	15/08/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Glycols								
Ethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Propylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Triethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,3 Propaniedol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
1,4 Butanediol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Diethylene Glycol	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Miscellaneous Organics								
Coal Tar	mg/kg	10	NONE	< 10.0	-	< 10.0	< 10.0	-

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Analytical Report Number : 14-58856

Project / Site name: Wrexham Prison

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
365439	TPS-TP01	None Supplied	0.20	Brown clay and topsoil with vegetation.
365440	TPS-TP01	None Supplied	0.80	Brown clay and topsoil with vegetation.
365441	TPS-TP03	None Supplied	0.10	Brown clay and topsoil with vegetation.
365442	TPS-TP04	None Supplied	0.40	Brown clay and topsoil with vegetation.
365443	TPS-TP05	None Supplied	1.00	Brown clay and topsoil with vegetation.
365444	TPS-TP06	None Supplied	0.50	Light brown sandy topsoil with rubble and stones.
365445	TPS-TP08	None Supplied	0.30	Brown clay and topsoil with gravel and vegetation.
365446	TPS-TP09	None Supplied	0.30	Brown clay and topsoil with gravel and vegetation.
365447	TPS-TP11	None Supplied	1.10	Light brown sandy topsoil with rubble and stones.
365448	TPS-TP12	None Supplied	0.20	Brown topsoil and clay with gravel and vegetation.
365449	TPS-TP14	None Supplied	0.20	Brown topsoil and clay with gravel and vegetation.
365450	TPS-TP16	None Supplied	0.10	Brown topsoil and clay with gravel and vegetation.
365451	TPS-TP18	None Supplied	0.30	Brown topsoil and clay with gravel and vegetation.
365452	TPS-TP19	None Supplied	0.30	Light brown sandy topsoil with rubble and vegetation.
365453	TPS-TP22	None Supplied	0.20	Brown sandy topsoil with rubble and stones.
365454	TPS-TP24	None Supplied	0.40	Brown sandy topsoil with rubble and stones.
365455	TPS-TP25	None Supplied	0.50	Brown sandy topsoil with rubble and stones.
365456	TPS-TP26	None Supplied	0.50	Brown sandy topsoil with rubble and stones.
365457	TPS-TP29	None Supplied	0.30	Brown sandy topsoil with rubble and stones.
365458	TPS-TP30	None Supplied	0.30	Brown sandy topsoil with rubble and stones.

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos quantification/ID Subcontracted analysis	Subcontracted analysis	Subcontracted analysis		D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Coal Tar in Soil	In-house method by GC-MS, by calculation of discrete polyaromatic content.	In-house method by calculation	L064-UK	D	NONE
Complex cyanide in soil	Determination of complex cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	D	NONE
Diethyleneglycol in soil	Determnation of Diethylene in soil by GC-MS.	In-house method	L096-UK	W	NONE
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in dichloromethane followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-PL	D	NONE
Ethylene Glycols in soil	Determnation of ethylene glycol in soil by GC-MS.	In-house method	L096-UK	W	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE
Glycols in Soil	In-house method	In-house method		W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenols, speciated, in soil, by GCMS	Determination of speciated phenols in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Propylene Glycol in soil	Determnation of Propylene Glycol in soil by GC-MS.	In-house method	L096-UK	W	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample results are not corrected for the stone content of the sample.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 leachate (g/l)	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	, Chemical and Electrochemical Tests""	In-house method based on BS1377 Part 3, 1990	L038-PL		MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Tentatively identified compounds (SVOC) in soil	Determination of semi-volatile organic compounds total ion count in soil by extraction with dichloromethane and hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L064-PL	D	NONE
Tentatively identified compounds (VOC) in soil	Determination of volatile organic compounds total ion count in soil by headspace GC-MS followed by a full library scan.	In-house method based on USEPA8260	L017-PL	W	NONE
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by spectrophotometer.	In-house method	L049-PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPH Chromatogram	TPH Chromatogram.	In-house method	L064-PL	D	NONE
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
Triethylene Glycol in soil	Determnation of Triethylene Glycol in soil by GC-MS.	In-house method	L096-UK	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS

Asbestos Methodology

Samples analysed by the in-house method were screened using approximately 100 g of soil sample. Quantification is performed on the whole sample.

Please note that on occasions where asbestos is found in the in-house method, the fibres are removed and isolated on the microscope slide; and therefore are not sent for quantification. In these instances there may be occasions where the quantification will be reported as negative (i.e the asbestos present has been isolated on the slide). This may also occur where more than one asbestos fibre type is identified in-house; and the quantification does not find all types previously identified (in-house method).

It is also possible that the in house method does not find any asbestos in the 100 g representative sub sample, whereas the quantification method (using the whole sample) has found fibres not previously identified.

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Assessment of Chemicals of Potential Concern to Human Health

Hydrock

								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG		MG	MG	MG	MG	MG	MG
All values in mg/kg unless otherwise stated								Location & Depth	TPS-TP01	TPS-TP01	TPS-TP05	TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12	TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22	TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP30	WYG-TP05	WYG-TP06	WYG-TP17	WYG-TP17	WYG-TP20	WYG-TP20
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**US_{95}**	**Result of Significance Test**	**0.2**	**0.8**	**1**	**0.5**	**0.3**	**0.3**	**1.1**	**0.2**	**0.2**	**0.1**	**0.3**	**0.3**	**0.2**	**0.4**	**0.5**	**0.5**	**0.3**	**0.5**	**0.5**	**0.5**	**1**	**0.5**	**1**
Arsenic	1	48	2.8	17	0	640	10.66882	POTENTIALLY SUITABLE FOR USE	10	13	12	15	13	12	17	12	11	7.5	7.9	10	7.6	4.7	4.1	17	9.4	12.3	9.6	4.9	9.3	8.6	11.7
Beryllium	0.06	48	0.2	2.2	0	420	1.300466	POTENTIALLY SUITABLE FOR USE	0.7	0.9	0.8	0.7	1	0.9	0.7	0.8	0.8	0.8	0.4	0.4	0.6	0.3	0.2	0.3	0.6	1.5	1.2	0.6	1.1	1.3	1.6
Boron	0.2	48	0.1	2.5	0	190000	1.404009	POTENTIALLY SUITABLE FOR USE	1.6	2	1.1	0.6	1.1	0.9	0.8	1.9	1.7	2.5	0.4	1.6	2.2	0.2	0.2	0.5	0.2	0.8	1.4	1.7	2	1.7	0.7
Cadmium	0.2	48	0.1	2	0	230	0.560551	POTENTIALLY SUITABLE FOR USE	0.2	0.4	0.2	0.3	0.3	0.5	0.2	0.3	0.8	0.3	0.5	0.5	0.3	0.2	0.2	0.2	0.3	0.4	0.1	0.3	0.2	2	0.1
Chromium (III)	1	48	8.4	119.1	0	8800	40.71631	POTENTIALLY SUITABLE FOR USE	20.8	29.8	30.8	15.8	30.8	28.8	14.8	29.8	25.8	19.8	18.8	17.8	40.8	16.8	12.8	11.8	47.8	30	33.2	14	26	24.9	43.5
Chromium (VI)	1.2	48	0.3	4	0	35	1.705775	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.3	0.3	0.3	0.3	0.3	0.3
Copper	1	48	7	110	0	72000	37.35128	POTENTIALLY SUITABLE FOR USE	26	25	27	25	31	28	35	37	36	28	35	32	31	16	17	110	27	35	7	10	22	17	21
Lead	2	48	13	284	0	2330	90.93412	POTENTIALLY SUITABLE FOR USE	54	74	42	20	42	43	41	39	76	63	120	68	68	20	25	27	47	35	33	26	53	109	16
Mercury, inorganic	0.3	48	0.1	0.3	0	3600	0.258035	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Nickel	2	48	6.8	69.4	0	1800	37.06019	POTENTIALLY SUITABLE FOR USE	26	32	34	19	37	33	17	39	31	22	16	20	28	18	13	18	24	32.2	24.7	16.7	30.4	23.7	46.3
Selenium	1	48	1	2	0	13000	1.111667	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	48	10	62	0	3200	40.81672	POTENTIALLY SUITABLE FOR USE	28	42	33	22	42	40	28	40	34	37	24	25	41	20	14	17	28	35	43	16	31	37	53
Zinc	2	48	40	455	0	670000	186.8923	POTENTIALLY SUITABLE FOR USE	85	120	88	62	180	150	41	87	160	140	130	100	130	51	40	49	120	117	78	56	105	419	83
Cyanide (free)	1	43	0.5	1	0	16000	0.86214	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5
Phenol (total)	2	48	0.01	2	0	3200	1.552674	POTENTIALLY SUITABLE FOR USE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.01	0.01	0.01	0.01	0.01	0.01
Acenaphthene	0.05	45	0.05	1	0	98000	0.18398	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	45	0.03	0.6	0	97000	0.138833	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.03	0.03	0.03	0.03	0.03	0.03
Anthracene	0.05	45	0.04	0.83	0	540000	0.176057	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.37	0.1	0.1	0.1	0.1	0.05	0.05	0.04	0.05	0.05	0.05
Benz(a)anthracene	0.05	45	0.06	2.59	0	95	0.660339	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.31	0.32	0.1	0.23	0.27	0.1	0.18	0.39	0.18	0.34	2.2	0.1	0.1	0.1	0.1	0.08	0.06	0.22	0.39	0.12	0.06
Benzo(a)pyrene	0.05	45	0.04	2.3	0	14	0.54492	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.21	0.1	0.1	0.1	0.1	0.1	0.1	0.59	0.1	0.34	2.3	0.1	0.1	0.1	0.1	0.05	0.04	0.16	0.26	0.06	0.04
Benzo(b)fluoranthene	0.05	45	0.05	2.64	0	100	0.636319	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.23	0.23	0.1	0.1	0.3	0.1	0.1	0.59	0.22	0.34	2.4	0.1	0.1	0.1	0.1	0.06	0.05	0.19	0.32	0.09	0.05
Benzo(ghi)perylene	0.05	45	0.04	1.1	0	660	0.287976	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.1	0.05	0.05	0.05	0.05	0.04	0.04	0.09	0.15	0.05	0.04
Benzo(k)fluoranthene	0.05	45	0.02	1.5	0	140	0.324783	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.14	0.17	0.1	0.1	0.14	0.1	0.1	0.37	0.11	0.24	1.5	0.1	0.1	0.1	0.1	0.02	0.02	0.08	0.12	0.04	0.02
Chrysene	0.05	45	0.02	2.22	0	140	0.542543	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.27	0.28	0.05	0.18	0.35	0.05	0.2	0.58	0.2	0.28	1.7	0.05	0.05	0.05	0.05	0.06	0.02	0.19	0.32	0.1	0.02
Dibenz(a,h)anthracene	0.05	45	0.04	0.99	0	13	0.195844	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.06	0.04	0.04
Fluoranthene	0.05	45	0.03	5.04	0	23000	0.998163	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.52	0.35	0.1	0.32	0.3	0.1	0.28	0.62	0.26	0.41	3	0.1	0.1	0.1	0.1	0.06	0.03	0.3	0.44	0.13	0.03
Fluorene	0.05	45	0.04	0.8	0	69000	0.163501	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.04	0.04	0.04
Indeno(1,2,3,cd)pyrene	0.05	45	0.04	1.29	0	61	0.325185	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.1	0.1	0.1	0.1	0.1	0.04	0.04	0.09	0.13	0.05	0.04
Naphthalene	0.05	45	0.04	0.8	0	480	0.136671	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Phenanthrene	0.05	45	0.03	2.09	0	22000	0.453171	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.27	0.15	0.1	0.1	0.24	0.1	0.11	0.14	0.18	0.17	1.2	0.1	0.1	0.1	0.1	0.03	0.03	0.11	0.12	0.03	0.03
Pyrene	0.05	45	0.03	3.85	0	54000	0.83529	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.48	0.33	0.1	0.36	0.31	0.1	0.24	0.58	0.25	0.38	2.7	0.1	0.1	0.1	0.1	0.06	0.03	0.25	0.38	0.11	0.03
	Mean																														
FOC (dimensionless)	0.011								0.02		0.0071	0.0043	0.016	0.013	0.011	0.025	0.031	0.029	0.0079	0.003	0.009	0.0032	0.0042	0.0006	0.015	0.003	0.005			0.01	0.003
SOM (calculated)	1.81%								3.45%		1.22%	0.74%	2.76%	2.24%	1.90%	4.31%	5.34%	5.00%	1.36%	0.52%	1.55%	0.55%	0.72%	0.10%	2.59%	0.52%	0.86%			1.72%	0.52%
pH (su)	8.1								6.5	6.6	7.5	7.8	7.6	7.6	7.7	7.6	7.6	7.5	7.6	7.7	7.6	7.8	7.9	8	7.8	8.16	8.02	8.23	8.26	8.64	8.45

Risk parameter: Human health - commercial (2.5%SOM)
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																												
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	WYG-BH06	WYG-BH07	WYG-BH08	WYG-BH09	WYG-BH09	WYG-BH10	WYG-BH11	WYG-BH10	WYG-BH10	WYG-BH12	WYG-BH12	WYG-BH13	WYG-BH14	WYG-BH15	WYG-BH16	WYG-BH17	WYG-BH18	WYG-HDP2	WYG-HDP3	WYG-HDP-	ESI-TP01	ESI-TP02	ESI-TP03	ESI-TP04	ESI-TP27
									0.5	0.5	1	0.5	1	0.5	1	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.2	0.3	0.5	0.5	0.5	0.4	0.4	1	0.2	
Arsenic	1	48	2.8	17	0	640	10.66882	POTENTIALLY SUITABLE FOR USE	6.5	12.2	11.6	12.9	2.8	7.1	9.2	4.8	3.1	11.1	9.7	11.9	11.7	9.4	9.7	11.9	11	10	9.6	12.2	9.2	10	12	7.6	8.8
Beryllium	0.06	48	0.2	2.2	0	420	1.300466	POTENTIALLY SUITABLE FOR USE	0.5	1.6	1.5	1.7	0.5	0.7	1	0.5	0.5	1.7	1.5	1.5	1.4	2	1.5	1.7	2.2	1	1.1	1.6	0.8	0.8	0.8	0.5	0.8
Boron	0.2	48	0.1	2.5	0	190000	1.404009	POTENTIALLY SUITABLE FOR USE	0.1	0.9	1.5	0.7	0.5	0.1	0.8	0.1	0.2	2.1	1.3	0.9	1.3	0.7	0.6	0.8	1.5	1.1	0.8	1.2	0.7	0.6	1.1	0.2	0.9
Cadmium	0.2	48	0.1	2	0	230	0.560551	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.6	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.1	0.2	0.5	1.4	0.2	0.3	0.2	1	0.3	0.2
Chromium (III)	1	48	8.4	119.1	0	8800	40.71631	POTENTIALLY SUITABLE FOR USE	9.3	39.7	35.6	29.4	119.1	16.7	45.2	14.7	8.4	50.7	37.5	15	32.7	45.9	36.2	39.6	55	23.3	26.1	38.9	26	28	29	16	23
Chromium (VI)	1.2	48	0.3	4	0	35	1.705775	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4	4	4	4	4
Copper	1	48	7	110	0	72000	37.35128	POTENTIALLY SUITABLE FOR USE	42	14	30	70	10	14	30	10	8	17	24	44	30	26	25	24	14	23	24	24	16	16	40	18	21
Lead	2	48	13	284	0	2330	90.93412	POTENTIALLY SUITABLE FOR USE	13	32	36	262	42	28	62	36	24	39	48	284	71	28	86	88	21	54	50	26	53	71	120	30	50
Mercury, inorganic	0.3	48	0.1	0.3	0	3600	0.258035	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
Nickel	2	48	6.8	69.4	0	1800	37.06019	POTENTIALLY SUITABLE FOR USE	11.8	37.7	40	37.5	8.5	18	26	8.5	6.8	43.9	39.8	27.5	33.6	69.4	39.6	59.7	54.4	24.5	29	44.1	25	27	28	19	27
Selenium	1	48	1	2	0	13000	1.111667	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	48	10	62	0	3200	40.81672	POTENTIALLY SUITABLE FOR USE	14	52	44	37	19	19	31	15	10	53	44	31	39	54	39	46	62	31	33	46	32	31	33	17	32
Zinc	2	48	40	455	0	670000	186.8923	POTENTIALLY SUITABLE FOR USE	44	85	86	455	74	60	147	74	45	109	116	327	123	95	107	117	94	132	390	122	130	140	290	93	93
Cyanide (free)	1	43	0.5	1	0	16000	0.86214	POTENTIALLY SUITABLE FOR USE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5					
Phenol (total)	2	48	0.01	2	0	3200	1.552674	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2	2	2	2	2
Acenaphthene	0.05	45	0.05	1	0	98000	0.18398	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	0.1				0.1
Acenaphthylene	0.05	45	0.03	0.6	0	97000	0.138833	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.13	0.6	0.2				0.2
Anthracene	0.05	45	0.04	0.83	0	540000	0.176057	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.08	0.05	0.05	0.07	0.83	0.04	0.05	0.06	0.04	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1				0.1
Benz(a)anthracene	0.05	45	0.06	2.59	0	95	0.660339	POTENTIALLY SUITABLE FOR USE	0.06	0.06	0.11	0.31	0.09	0.06	0.18	2.59	0.12	0.06	0.29	0.15	0.35	0.06	0.21	0.06	0.06	0.13	0.65	1.78	0.2				0.48
Benzo(a)pyrene	0.05	45	0.04	2.3	0	14	0.54492	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.08	0.27	0.06	0.04	0.12	2.15	0.08	0.04	0.25	0.14	0.25	0.04	0.17	0.04	0.04	0.11	0.49	0.8	0.1				0.4
Benzo(b)fluoranthene	0.05	45	0.05	2.64	0	100	0.636319	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.12	0.41	0.09	0.05	0.17	2.64	0.12	0.05	0.34	0.17	0.33	0.05	0.22	0.05	0.05	0.15	0.54	1	0.1				0.59
Benzo(ghi)perylene	0.05	45	0.04	1.1	0	660	0.287976	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.07	0.21	0.05	0.04	0.07	1.07	0.07	0.04	0.15	0.13	0.18	0.04	0.11	0.04	0.04	0.08	0.27	0.8	0.05				0.05
Benzo(k)fluoranthene	0.05	45	0.02	1.5	0	140	0.324783	POTENTIALLY SUITABLE FOR USE	0.02	0.02	0.05	0.16	0.03	0.02	0.06	1.02	0.04	0.02	0.13	0.06	0.13	0.02	0.09	0.02	0.02	0.06	0.21	0.4	0.2				0.24
Chrysene	0.05	45	0.02	2.22	0	140	0.542543	POTENTIALLY SUITABLE FOR USE	0.02	0.02	0.1	0.36	0.09	0.02	0.16	2.22	0.09	0.02	0.25	0.13	0.33	0.02	0.18	0.02	0.02	0.13	0.52	1.3	0.05				0.46
Dibenz(a,h)anthracene	0.05	45	0.04	0.99	0	13	0.195844	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.07	0.04	0.04	0.04	0.27	0.04	0.04	0.04	0.05	0.06	0.04	0.04	0.04	0.04	0.04	0.11	0.99	0.2				0.2
Fluoranthene	0.05	45	0.03	5.04	0	23000	0.998163	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.12	0.53	0.09	0.03	0.3	5.04	0.12	0.03	0.39	0.14	0.64	0.03	0.22	0.03	0.03	0.15	1.42	1.32	0.2				0.81
Fluorene	0.05	45	0.04	0.8	0	69000	0.163501	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.11	0.8	0.2				0.2
Indeno(1,2,3,cd)pyrene	0.05	45	0.04	1.29	0	61	0.325185	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.08	0.18	0.05	0.04	0.07	1.29	0.06	0.04	0.15	0.13	0.16	0.04	0.11	0.04	0.04	0.08	0.26	0.8	0.2				0.2
Naphthalene	0.05	45	0.04	0.8	0	480	0.136671	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.1	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.05				0.05
Phenanthrene	0.05	45	0.03	2.09	0	22000	0.453171	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.03	0.03	0.03	0.03	0.24	2.09	0.03	0.03	0.14	0.14	0.3	0.03	0.05	0.03	0.03	0.06	1.24	0.6	0.2				0.1
Pyrene	0.05	45	0.03	3.85	0	54000	0.83529	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.12	0.47	0.09	0.03	0.24	3.85	0.1	0.03	0.34	0.12	0.51	0.03	0.2	0.03	0.03	0.15	1.11	1.39	0.2				0.72
	Mean																																
FOC (dimensionless)	0.011								0.002	0.008	0.011			0.005				0.011				0.004	0.007		0.004				0.02	0.014	0.016	0.0036	0.032
SOM (calculated)	1.81%								0.34%	1.38%	1.90%			0.86%				1.90%				0.69%	1.21%		0.69%				3.45%	2.41%	2.76%	0.62%	5.52%
pH (su)	8.1								8.07	8.26	7.91	8.74	11.69	8.71	9.02	9.05	8.77	8	7.7	8.31	8.29	8.12	8.69	8.67	8.07	8.22	8.27	8.27	7.3	7.7	7.8	8.3	7.5

Risk parameter: **Human health - commercial (2.5%SOM)**
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TPS-TP01	TPS-TP01	TPS-TP05	TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12	TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22	TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP30	WYG-TP05	WYG-TP06	WYG-TP17	WYG-TP17	WYG-TP20	WYG-TP20
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG		MG	MG	MG	MG	MG	MG
								Location & Depth	TPS-TP01	TPS-TP01	TPS-TP05	TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12	TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22	TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP30	WYG-TP05	WYG-TP06	WYG-TP17	WYG-TP17	WYG-TP20	WYG-TP20
									0.2	0.8	1	0.5	0.3	0.3	1.1	0.2	0.2	0.1	0.3	0.3	0.2	0.4	0.5	0.5	0.3	0.5	0.5	0.5	1	0.5	1
Arsenic	1	48	2.8	17	0	79	10.66882	POTENTIALLY SUITABLE FOR USE	10	13	12	15	13	12	17	12	11	7.5	7.9	10	7.6	4.7	4.1	17	9.4	12.3	9.6	4.9	9.3	8.6	11.7
Beryllium	0.06	48	0.2	2.2	0	93	1.300466	POTENTIALLY SUITABLE FOR USE	0.7	0.9	0.8	0.7	1	0.9	0.7	0.8	0.8	0.8	0.4	0.4	0.6	0.3	0.2	0.3	0.6	1.5	1.2	0.6	1.1	1.3	1.6
Boron	0.2	48	0.1	2.5	0	21000	1.404009	POTENTIALLY SUITABLE FOR USE	1.6	2	1.1	0.6	1.1	0.9	0.8	1.9	1.7	2.5	0.4	1.6	2.2	0.2	0.2	0.5	0.2	0.8	1.4	1.7	2	1.7	0.7
Cadmium	0.2	48	0.1	2	0	120	0.560551	POTENTIALLY SUITABLE FOR USE	0.2	0.4	0.2	0.3	0.3	0.5	0.2	0.3	0.8	0.3	0.5	0.5	0.3	0.2	0.2	0.2	0.3	0.4	0.1	0.3	0.2	2	0.1
Chromium (III)	1	48	8.4	119.1	0	1500	40.71631	POTENTIALLY SUITABLE FOR USE	20.8	29.8	30.8	15.8	30.8	28.8	14.8	29.8	25.8	19.8	18.8	17.8	40.8	16.8	12.8	11.8	47.8	30	33.2	14	26	24.9	43.5
Chromium (VI)	1.2	48	0.3	4	0	7.7	1.705775	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.3	0.3	0.3	0.3	0.3	0.3
Copper	1	48	7	110	0	12000	37.35128	POTENTIALLY SUITABLE FOR USE	26	25	27	25	31	28	35	37	36	28	35	32	31	16	17	110	27	35	7	10	22	17	21
Lead	2	48	13	284	0	630	90.93412	POTENTIALLY SUITABLE FOR USE	54	74	42	20	42	43	41	39	76	63	120	68	68	20	25	27	47	35	33	26	53	109	16
Mercury, inorganic	0.3	48	0.1	0.3	0	470	0.258035	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Nickel	2	48	6.8	69.4	0	290	37.06019	POTENTIALLY SUITABLE FOR USE	26	32	34	19	37	33	17	39	31	22	16	20	28	18	13	18	24	32.2	24.7	16.7	30.4	23.7	46.3
Selenium	1	48	1	2	0	1400	1.111667	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	48	10	62	0	440	40.81672	POTENTIALLY SUITABLE FOR USE	28	42	33	22	42	40	28	40	34	37	24	25	41	20	14	17	28	35	43	16	31	37	53
Zinc	2	48	40	455	0	81000	186.8923	POTENTIALLY SUITABLE FOR USE	85	120	88	62	180	150	41	87	160	140	130	100	130	51	40	49	120	117	78	56	105	419	83
Cyanide (free)	1	43	0.5	1	0	1600	0.86214	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5
Phenol (total)	2	48	0.01	2	0	3200	1.552674	POTENTIALLY SUITABLE FOR USE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.01	0.01	0.01	0.01	0.01	0.01
Acenaphthene	0.05	45	0.05	1	0	15000	0.18398	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	45	0.03	0.6	0	15000	0.138833	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.03	0.03	0.03	0.03	0.03	0.03
Anthracene	0.05	45	0.04	0.83	0	74000	0.176057	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.37	0.1	0.1	0.1	0.1	0.05	0.05	0.04	0.05	0.05	0.05
Benz(a)anthracene	0.05	45	0.06	2.59	0	18	0.660339	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.31	0.32	0.1	0.23	0.27	0.1	0.18	0.39	0.18	0.34	2.2	0.1	0.1	0.1	0.1	0.08	0.06	0.22	0.39	0.12	0.06
Benzo(a)pyrene	0.05	45	0.04	2.3	0	2.6	0.54492	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.21	0.1	0.1	0.1	0.1	0.1	0.1	0.59	0.1	0.34	2.3	0.1	0.1	0.1	0.1	0.05	0.04	0.16	0.26	0.06	0.04
Benzo(b)fluoranthene	0.05	45	0.05	2.64	0	18	0.636319	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.23	0.23	0.1	0.1	0.3	0.1	0.1	0.59	0.22	0.34	2.4	0.1	0.1	0.1	0.1	0.06	0.05	0.19	0.32	0.09	0.05
Benzo(ghi)perylene	0.05	45	0.04	1.1	0	120	0.287976	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.1	0.05	0.05	0.05	0.05	0.04	0.04	0.09	0.15	0.05	0.04
Benzo(k)fluoranthene	0.05	45	0.02	1.5	0	26	0.324783	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.14	0.17	0.1	0.1	0.14	0.1	0.1	0.37	0.11	0.24	1.5	0.1	0.1	0.1	0.1	0.02	0.02	0.08	0.12	0.04	0.02
Chrysene	0.05	45	0.02	2.22	0	26	0.542543	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.27	0.28	0.05	0.18	0.35	0.05	0.2	0.58	0.2	0.28	1.7	0.05	0.05	0.05	0.05	0.06	0.02	0.19	0.32	0.1	0.02
Dibenz(a,h)anthracene	0.05	45	0.04	0.99	0	2.3	0.195844	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.06	0.04	0.04
Fluoranthene	0.05	45	0.03	5.04	0	3100	0.998163	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.52	0.35	0.1	0.32	0.3	0.1	0.28	0.62	0.26	0.41	3	0.1	0.1	0.1	0.1	0.06	0.03	0.3	0.44	0.13	0.03
Fluorene	0.05	45	0.04	0.8	0	9900	0.163501	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.04	0.04	0.04
Indeno(1,2,3,cd)pyrene	0.05	45	0.04	1.29	0	11	0.325185	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.1	0.1	0.1	0.1	0.1	0.04	0.04	0.09	0.13	0.05	0.04
Naphthalene	0.05	45	0.04	0.8	0	4100	0.136671	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Phenanthrene	0.05	45	0.03	2.09	0	3100	0.453171	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.27	0.15	0.1	0.1	0.24	0.1	0.11	0.14	0.18	0.17	1.2	0.1	0.1	0.1	0.1	0.03	0.03	0.11	0.12	0.03	0.03
Pyrene	0.05	45	0.03	3.85	0	7400	0.83529	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.48	0.33	0.1	0.36	0.31	0.1	0.24	0.58	0.25	0.38	2.7	0.1	0.1	0.1	0.1	0.06	0.03	0.25	0.38	0.11	0.03
	Mean																														
FOC (dimensionless)	0.011								0.02		0.0071	0.0043	0.016	0.013	0.011	0.025	0.031	0.029	0.0079	0.003	0.009	0.0032	0.0042	0.0006	0.015	0.003	0.005			0.01	0.003
SOM (calculated)	1.81%								3.45%		1.22%	0.74%	2.76%	2.24%	1.90%	4.31%	5.34%	5.00%	1.36%	0.52%	1.55%	0.55%	0.72%	0.10%	2.59%	0.52%	0.86%			1.72%	0.52%
pH (su)	8.1								6.5	6.6	7.5	7.8	7.6	7.6	7.7	7.6	7.6	7.5	7.6	7.7	7.6	7.8	7.9	8	7.8	8.16	8.02	8.23	8.26	8.64	8.45

Risk parameter: Human health - POS resi (2.5%SOM)
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																											
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	WYG-BH06	WYG-BH07	WYG-BH08	WYG-BH09	WYG-BH09	WYG-BH10	WYG-BH11	WYG-BH10	WYG-BH10	WYG-BH12	WYG-BH12	WYG-BH13	WYG-BH14	WYG-BH15	WYG-BH16	WYG-BH17	WYG-BH18	WYG-HDP2	WYG-HDP3	WYG-HDP-	ESI-TP01	ESI-TP02	ESI-TP03	ESI-TP04	ESI-TP27
									0.5	0.5	1	0.5	1	0.5	1	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.2	0.3	0.5	0.5	0.5	0.4	0.4	1	0.2	
Arsenic	1	48	2.8	17	0	79	10.66882	POTENTIALLY SUITABLE FOR USE	6.5	12.2	11.6	12.9	2.8	7.1	9.2	4.8	3.1	11.1	9.7	11.9	11.7	9.4	9.7	11.9	11	10	9.6	12.2	9.2	10	12	7.6	8.8
Beryllium	0.06	48	0.2	2.2	0	93	1.300466	POTENTIALLY SUITABLE FOR USE	0.5	1.6	1.5	1.7	0.5	0.7	1	0.5	0.5	1.7	1.5	1.5	1.4	2	1.5	1.7	2.2	1	1.1	1.6	0.8	0.8	0.8	0.5	0.8
Boron	0.2	48	0.1	2.5	0	21000	1.404009	POTENTIALLY SUITABLE FOR USE	0.1	0.9	1.5	0.7	0.5	0.1	0.8	0.1	0.2	2.1	1.3	0.9	1.3	0.7	0.6	0.8	1.5	1.1	0.8	1.2	0.7	0.6	1.1	0.2	0.9
Cadmium	0.2	48	0.1	2	0	120	0.560551	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.6	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.1	0.2	0.5	1.4	0.2	0.3	0.2	1	0.3	0.2
Chromium (III)	1	48	8.4	119.1	0	1500	40.71631	POTENTIALLY SUITABLE FOR USE	9.3	39.7	35.6	29.4	119.1	16.7	45.2	14.7	8.4	50.7	37.5	15	32.7	45.9	36.2	39.6	55	23.3	26.1	38.9	26	28	29	16	23
Chromium (VI)	1.2	48	0.3	4	0	7.7	1.705775	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4	4	4	4	4
Copper	1	48	7	110	0	12000	37.35128	POTENTIALLY SUITABLE FOR USE	42	14	30	70	10	14	30	10	8	17	24	44	30	26	25	24	14	23	24	24	16	16	40	18	21
Lead	2	48	13	284	0	630	90.93412	POTENTIALLY SUITABLE FOR USE	13	32	36	262	42	28	62	36	24	39	48	284	71	28	86	88	21	54	50	26	53	71	120	30	50
Mercury, inorganic	0.3	48	0.1	0.3	0	470	0.258035	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
Nickel	2	48	6.8	69.4	0	290	37.06019	POTENTIALLY SUITABLE FOR USE	11.8	37.7	40	37.5	8.5	18	26	8.5	6.8	43.9	39.8	27.5	33.6	69.4	39.6	59.7	54.4	24.5	29	44.1	25	27	28	19	27
Selenium	1	48	1	2	0	1400	1.111667	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	48	10	62	0	440	40.81672	POTENTIALLY SUITABLE FOR USE	14	52	44	37	19	19	31	15	10	53	44	31	39	54	39	46	62	31	33	46	32	31	33	17	32
Zinc	2	48	40	455	0	81000	186.8923	POTENTIALLY SUITABLE FOR USE	44	85	86	455	74	60	147	74	45	109	116	327	123	95	107	117	94	132	390	122	130	140	290	93	93
Cyanide (free)	1	43	0.5	1	0	1600	0.86214	POTENTIALLY SUITABLE FOR USE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5					
Phenol (total)	2	48	0.01	2	0	3200	1.552674	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2	2	2	2	2
Acenaphthene	0.05	45	0.05	1	0	15000	0.18398	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	0.1				0.1
Acenaphthylene	0.05	45	0.03	0.6	0	15000	0.138833	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.13	0.6	0.2				0.2
Anthracene	0.05	45	0.04	0.83	0	74000	0.176057	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.08	0.05	0.05	0.07	0.83	0.04	0.05	0.06	0.04	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1				0.1
Benz(a)anthracene	0.05	45	0.06	2.59	0	18	0.660339	POTENTIALLY SUITABLE FOR USE	0.06	0.06	0.11	0.31	0.09	0.06	0.18	2.59	0.12	0.06	0.29	0.15	0.35	0.06	0.21	0.06	0.06	0.13	0.65	1.78	0.2				0.48
Benzo(a)pyrene	0.05	45	0.04	2.3	0	2.6	0.54492	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.08	0.27	0.06	0.04	0.12	2.15	0.08	0.04	0.25	0.14	0.25	0.04	0.17	0.04	0.04	0.11	0.49	0.8	0.1				0.4
Benzo(b)fluoranthene	0.05	45	0.05	2.64	0	18	0.636319	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.12	0.41	0.09	0.05	0.17	2.64	0.12	0.05	0.34	0.17	0.33	0.05	0.22	0.05	0.05	0.15	0.54	1	0.1				0.59
Benzo(ghi)perylene	0.05	45	0.04	1.1	0	120	0.287976	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.07	0.21	0.05	0.04	0.07	1.07	0.07	0.04	0.15	0.13	0.18	0.04	0.11	0.04	0.04	0.08	0.27	0.8	0.05				0.05
Benzo(k)fluoranthene	0.05	45	0.02	1.5	0	26	0.324783	POTENTIALLY SUITABLE FOR USE	0.02	0.02	0.05	0.16	0.03	0.02	0.06	1.02	0.04	0.02	0.13	0.06	0.13	0.02	0.09	0.02	0.02	0.06	0.21	0.4	0.2				0.24
Chrysene	0.05	45	0.02	2.22	0	26	0.542543	POTENTIALLY SUITABLE FOR USE	0.02	0.02	0.1	0.36	0.09	0.02	0.16	2.22	0.09	0.02	0.25	0.13	0.33	0.02	0.18	0.02	0.02	0.13	0.52	1.3	0.05				0.46
Dibenz(a,h)anthracene	0.05	45	0.04	0.99	0	2.3	0.195844	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.07	0.04	0.04	0.04	0.27	0.04	0.04	0.04	0.05	0.06	0.04	0.04	0.04	0.04	0.04	0.11	0.99	0.2				0.2
Fluoranthene	0.05	45	0.03	5.04	0	3100	0.998163	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.12	0.53	0.09	0.03	0.3	5.04	0.12	0.03	0.39	0.14	0.64	0.03	0.22	0.03	0.03	0.15	1.42	1.32	0.2				0.81
Fluorene	0.05	45	0.04	0.8	0	9900	0.163501	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.11	0.8	0.2				0.2
Indeno(1,2,3,cd)pyrene	0.05	45	0.04	1.29	0	11	0.325185	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.08	0.18	0.05	0.04	0.07	1.29	0.06	0.04	0.15	0.13	0.16	0.04	0.11	0.04	0.04	0.08	0.26	0.8	0.2				0.2
Naphthalene	0.05	45	0.04	0.8	0	4100	0.136671	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.1	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.05				0.05
Phenanthrene	0.05	45	0.03	2.09	0	3100	0.453171	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.03	0.03	0.03	0.03	0.24	2.09	0.03	0.03	0.14	0.14	0.3	0.03	0.05	0.03	0.03	0.06	1.24	0.6	0.2				0.1
Pyrene	0.05	45	0.03	3.85	0	7400	0.83529	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.12	0.47	0.09	0.03	0.24	3.85	0.1	0.03	0.34	0.12	0.51	0.03	0.2	0.03	0.03	0.15	1.11	1.39	0.2				0.72
	Mean																																
FOC (dimensionless)	0.011								0.002	0.008	0.011			0.005				0.011				0.004	0.007		0.004				0.02	0.014	0.016	0.0036	0.032
SOM (calculated)	1.81%								0.34%	1.38%	1.90%			0.86%				1.90%				0.69%	1.21%		0.69%				3.45%	2.41%	2.76%	0.62%	5.52%
pH (su)	8.1								8.07	8.26	7.91	8.74	11.69	8.71	9.02	9.05	8.77	8	7.7	8.31	8.29	8.12	8.69	8.67	8.07	8.22	8.27	8.27	7.3	7.7	7.8	8.3	7.5

Risk parameter: Human health - POS resi (2.5%SOM)
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																										
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG		MG	MG	MG	MG	MG	MG
								Location & Depth	TPS-TP01	TPS-TP01	TPS-TP05	TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12	TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22	TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP30	WYG-TP05	WYG-TP06	WYG-TP17	WYG-TP17	WYG-TP20	WYG-TP20
									0.2	0.8	1	0.5	0.3	0.3	1.1	0.2	0.2	0.1	0.3	0.3	0.2	0.4	0.5	0.5	0.3	0.5	0.5	0.5	1	0.5	1
Arsenic	1	48	2.8	17	0	32	10.66882	POTENTIALLY SUITABLE FOR USE	10	13	12	15	13	12	17	12	11	7.5	7.9	10	7.6	4.7	4.1	17	9.4	12.3	9.6	4.9	9.3	8.6	11.7
Beryllium	0.06	48	0.2	2.2	0	51	1.300466	POTENTIALLY SUITABLE FOR USE	0.7	0.9	0.8	0.7	1	0.9	0.7	0.8	0.8	0.8	0.4	0.4	0.6	0.3	0.2	0.3	0.6	1.5	1.2	0.6	1.1	1.3	1.6
Boron	0.2	48	0.1	2.5	0	290	1.404009	POTENTIALLY SUITABLE FOR USE	1.6	2	1.1	0.6	1.1	0.9	0.8	1.9	1.7	2.5	0.4	1.6	2.2	0.2	0.2	0.5	0.2	0.8	1.4	1.7	2	1.7	0.7
Cadmium	0.2	48	0.1	2	0	11	0.560551	POTENTIALLY SUITABLE FOR USE	0.2	0.4	0.2	0.3	0.3	0.5	0.2	0.3	0.8	0.3	0.5	0.5	0.3	0.2	0.2	0.2	0.3	0.4	0.1	0.3	0.2	2	0.1
Chromium (III)	1	48	8.4	119.1	0	630	40.71631	POTENTIALLY SUITABLE FOR USE	20.8	29.8	30.8	15.8	30.8	28.8	14.8	29.8	25.8	19.8	18.8	17.8	40.8	16.8	12.8	11.8	47.8	30	33.2	14	26	24.9	43.5
Chromium (VI)	1.2	48	0.3	4	0	4.3	1.705775	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.3	0.3	0.3	0.3	0.3	0.3
Copper	1	48	7	110	0	2300	37.35128	POTENTIALLY SUITABLE FOR USE	26	25	27	25	31	28	35	37	36	28	35	32	31	16	17	110	27	35	7	10	22	17	21
Lead	2	48	13	284	2	200	90.93412	POTENTIALLY SUITABLE FOR USE	54	74	42	20	42	43	41	39	76	63	120	68	68	20	25	27	47	35	33	26	53	109	16
Mercury, inorganic	0.3	48	0.1	0.3	0	170	0.258035	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Nickel	2	48	6.8	69.4	0	130	37.06019	POTENTIALLY SUITABLE FOR USE	26	32	34	19	37	33	17	39	31	22	16	20	28	18	13	18	24	32.2	24.7	16.7	30.4	23.7	46.3
Selenium	1	48	1	2	0	350	1.111667	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	48	10	62	0	74	40.81672	POTENTIALLY SUITABLE FOR USE	28	42	33	22	42	40	28	40	34	37	24	25	41	20	14	17	28	35	43	16	31	37	53
Zinc	2	48	40	455	0	3700	186.8923	POTENTIALLY SUITABLE FOR USE	85	120	88	62	180	150	41	87	160	140	130	100	130	51	40	49	120	117	78	56	105	419	83
Cyanide (free)	1	43	0.5	1	0	750	0.86214	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5
Phenol (total)	2	48	0.01	2	0	290	1.552674	POTENTIALLY SUITABLE FOR USE	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.01	0.01	0.01	0.01	0.01	0.01
Acenaphthene	0.05	45	0.05	1	0	480	0.18398	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05
Acenaphthylene	0.05	45	0.03	0.6	0	400	0.138833	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.03	0.03	0.03	0.03	0.03	0.03
Anthracene	0.05	45	0.04	0.83	0	4900	0.176057	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.37	0.1	0.1	0.1	0.1	0.05	0.05	0.04	0.05	0.05	0.05
Benz(a)anthracene	0.05	45	0.06	2.59	0	4.7	0.660339	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.31	0.32	0.1	0.23	0.27	0.1	0.18	0.39	0.18	0.34	2.2	0.1	0.1	0.1	0.1	0.08	0.06	0.22	0.39	0.12	0.06
Benzo(a)pyrene	0.05	45	0.04	2.3	2	0.94	0.54492	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.21	0.1	0.1	0.1	0.1	0.1	0.1	0.59	0.1	0.34	2.3	0.1	0.1	0.1	0.1	0.05	0.04	0.16	0.26	0.06	0.04
Benzo(b)fluoranthene	0.05	45	0.05	2.64	0	6.5	0.636319	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.23	0.23	0.1	0.1	0.3	0.1	0.1	0.59	0.22	0.34	2.4	0.1	0.1	0.1	0.1	0.06	0.05	0.19	0.32	0.09	0.05
Benzo(ghi)perylene	0.05	45	0.04	1.1	0	46	0.287976	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.1	0.05	0.05	0.05	0.05	0.04	0.04	0.09	0.15	0.05	0.04
Benzo(k)fluoranthene	0.05	45	0.02	1.5	0	9.6	0.324783	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.14	0.17	0.1	0.1	0.14	0.1	0.1	0.37	0.11	0.24	1.5	0.1	0.1	0.1	0.1	0.02	0.02	0.08	0.12	0.04	0.02
Chrysene	0.05	45	0.02	2.22	0	8	0.542543	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.27	0.28	0.05	0.18	0.35	0.05	0.2	0.58	0.2	0.28	1.7	0.05	0.05	0.05	0.05	0.06	0.02	0.19	0.32	0.1	0.02
Dibenz(a,h)anthracene	0.05	45	0.04	0.99	1	0.86	0.195844	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.06	0.04	0.04
Fluoranthene	0.05	45	0.03	5.04	0	460	0.998163	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.52	0.35	0.1	0.32	0.3	0.1	0.28	0.62	0.26	0.41	3	0.1	0.1	0.1	0.1	0.06	0.03	0.3	0.44	0.13	0.03
Fluorene	0.05	45	0.04	0.8	0	380	0.163501	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.04	0.04	0.04
Indeno(1,2,3,cd)pyrene	0.05	45	0.04	1.29	0	3.9	0.325185	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.1	0.1	0.1	0.1	0.1	0.04	0.04	0.09	0.13	0.05	0.04
Naphthalene	0.05	45	0.04	0.8	0	3.7	0.136671	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Phenanthrene	0.05	45	0.03	2.09	0	200	0.453171	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.27	0.15	0.1	0.1	0.24	0.1	0.11	0.14	0.18	0.17	1.2	0.1	0.1	0.1	0.1	0.03	0.03	0.11	0.12	0.03	0.03
Pyrene	0.05	45	0.03	3.85	0	1000	0.83529	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.48	0.33	0.1	0.36	0.31	0.1	0.24	0.58	0.25	0.38	2.7	0.1	0.1	0.1	0.1	0.06	0.03	0.25	0.38	0.11	0.03
	Mean																														
FOC (dimensionless)	0.011								0.02		0.0071	0.0043	0.016	0.013	0.011	0.025	0.031	0.029	0.0079	0.003	0.009	0.0032	0.0042	0.0006	0.015	0.003	0.005			0.01	0.003
SOM (calculated)	1.81%								3.45%		1.22%	0.74%	2.76%	2.24%	1.90%	4.31%	5.34%	5.00%	1.36%	0.52%	1.55%	0.55%	0.72%	0.10%	2.59%	0.52%	0.86%			1.72%	0.52%
pH (su)	8.1								6.5	6.6	7.5	7.8	7.6	7.6	7.7	7.6	7.6	7.5	7.6	7.7	7.6	7.8	7.9	8	7.8	8.16	8.02	8.23	8.26	8.64	8.45

Risk parameter: Human health - residential with plant uptake (2.5%SOM)
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																												
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	WYG-BH06	WYG-BH07	WYG-BH08	WYG-BH09	WYG-BH09	WYG-BH10	WYG-BH11	WYG-BH10	WYG-BH10	WYG-BH12	WYG-BH12	WYG-BH13	WYG-BH14	WYG-BH15	WYG-BH16	WYG-BH17	WYG-BH18	WYG-HDP3	WYG-HDP3	WYG-HDP-	ESI-TP01	ESI-TP02	ESI-TP03	ESI-TP04	ESI-TP27
									0.5	0.5	1	0.5	1	0.5	1	0.5	1	0.5	0.5	0.5	1	0.5	0.5	0.2	0.3	0.5	0.5	0.5	0.4	0.4	1	0.2	
Arsenic	1	48	2.8	17	0	32	10.66882	POTENTIALLY SUITABLE FOR USE	6.5	12.2	11.6	12.9	2.8	7.1	9.2	4.8	3.1	11.1	9.7	11.9	11.7	9.4	9.7	11.9	11	10	9.6	12.2	9.2	10	12	7.6	8.8
Beryllium	0.06	48	0.2	2.2	0	51	1.300466	POTENTIALLY SUITABLE FOR USE	0.5	1.6	1.5	1.7	0.5	0.7	1	0.5	0.5	1.7	1.5	1.5	1.4	2	1.5	1.7	2.2	1	1.1	1.6	0.8	0.8	0.8	0.5	0.8
Boron	0.2	48	0.1	2.5	0	290	1.404009	POTENTIALLY SUITABLE FOR USE	0.1	0.9	1.5	0.7	0.5	0.1	0.8	0.1	0.2	2.1	1.3	0.9	1.3	0.7	0.6	0.8	1.5	1.1	0.8	1.2	0.7	0.6	1.1	0.2	0.9
Cadmium	0.2	48	0.1	2	0	11	0.560551	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.6	0.3	0.3	0.3	0.1	0.1	0.1	0.3	0.1	0.2	0.5	1.4	0.2	0.3	0.2	1	0.3	0.2
Chromium (III)	1	48	8.4	119.1	0	630	40.71631	POTENTIALLY SUITABLE FOR USE	9.3	39.7	35.6	29.4	119.1	16.7	45.2	14.7	8.4	50.7	37.5	15	32.7	45.9	36.2	39.6	55	23.3	26.1	38.9	26	28	29	16	23
Chromium (VI)	1.2	48	0.3	4	0	4.3	1.705775	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4	4	4	4	4
Copper	1	48	7	110	0	2300	37.35128	POTENTIALLY SUITABLE FOR USE	42	14	30	70	10	14	30	10	8	17	24	44	30	26	25	24	14	23	24	24	16	16	40	18	21
Lead	2	48	13	284	2	200	90.93412	POTENTIALLY SUITABLE FOR USE	13	32	36	262	42	28	62	36	24	39	48	284	71	28	86	88	21	54	50	26	53	71	120	30	50
Mercury, inorganic	0.3	48	0.1	0.3	0	170	0.258035	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
Nickel	2	48	6.8	69.4	0	130	37.06019	POTENTIALLY SUITABLE FOR USE	11.8	37.7	40	37.5	8.5	18	26	8.5	6.8	43.9	39.8	27.5	33.6	69.4	39.6	59.7	54.4	24.5	29	44.1	25	27	28	19	27
Selenium	1	48	1	2	0	350	1.111667	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
Vanadium	1	48	10	62	0	74	40.81672	POTENTIALLY SUITABLE FOR USE	14	52	44	37	19	19	31	15	10	53	44	31	39	54	39	46	62	31	33	46	32	31	33	17	32
Zinc	2	48	40	455	0	3700	186.8923	POTENTIALLY SUITABLE FOR USE	44	85	86	455	74	60	147	74	45	109	116	327	123	95	107	117	94	132	390	122	130	140	290	93	93
Cyanide (free)	1	43	0.5	1	0	750	0.86214	POTENTIALLY SUITABLE FOR USE	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5					
Phenol (total)	2	48	0.01	2	0	290	1.552674	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2	2	2	2	2
Acenaphthene	0.05	45	0.05	1	0	480	0.18398	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	0.1				0.1
Acenaphthylene	0.05	45	0.03	0.6	0	400	0.138833	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.13	0.6	0.2				0.2
Anthracene	0.05	45	0.04	0.83	0	4900	0.176057	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.08	0.05	0.05	0.07	0.83	0.04	0.05	0.06	0.04	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1				0.1
Benz(a)anthracene	0.05	45	0.06	2.59	0	4.7	0.660339	POTENTIALLY SUITABLE FOR USE	0.06	0.06	0.11	0.31	0.09	0.06	0.18	2.59	0.12	0.06	0.29	0.15	0.35	0.06	0.21	0.06	0.06	0.13	0.65	1.78	0.2				0.48
Benzo(a)pyrene	0.05	45	0.04	2.3	2	0.94	0.54492	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.08	0.27	0.06	0.04	0.12	2.15	0.08	0.04	0.25	0.14	0.25	0.04	0.17	0.04	0.04	0.11	0.49	0.8	0.1				0.4
Benzo(b)fluoranthene	0.05	45	0.05	2.64	0	6.5	0.636319	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.12	0.41	0.09	0.05	0.17	2.64	0.12	0.05	0.34	0.17	0.33	0.05	0.22	0.05	0.05	0.15	0.54	1	0.1				0.59
Benzo(ghi)perylene	0.05	45	0.04	1.1	0	46	0.287976	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.07	0.21	0.05	0.04	0.07	1.07	0.07	0.04	0.15	0.13	0.18	0.04	0.11	0.04	0.04	0.08	0.27	0.8	0.05				0.05
Benzo(k)fluoranthene	0.05	45	0.02	1.5	0	9.6	0.324783	POTENTIALLY SUITABLE FOR USE	0.02	0.02	0.05	0.16	0.03	0.02	0.06	1.02	0.04	0.02	0.13	0.06	0.13	0.02	0.09	0.02	0.02	0.06	0.21	0.4	0.2				0.24
Chrysene	0.05	45	0.02	2.22	0	8	0.542543	POTENTIALLY SUITABLE FOR USE	0.02	0.02	0.1	0.36	0.09	0.02	0.16	2.22	0.09	0.02	0.25	0.13	0.33	0.02	0.18	0.02	0.02	0.13	0.52	1.3	0.05				0.46
Dibenz(a,h)anthracene	0.05	45	0.04	0.99	1	0.86	0.195844	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.07	0.04	0.04	0.04	0.27	0.04	0.04	0.04	0.05	0.06	0.04	0.04	0.04	0.04	0.04	0.11	0.99	0.2				0.2
Fluoranthene	0.05	45	0.03	5.04	0	460	0.998163	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.12	0.53	0.09	0.03	0.3	5.04	0.12	0.03	0.39	0.14	0.64	0.03	0.22	0.03	0.03	0.15	1.42	1.32	0.2				0.81
Fluorene	0.05	45	0.04	0.8	0	380	0.163501	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.11	0.8	0.2				0.2
Indeno(1,2,3,cd)pyrene	0.05	45	0.04	1.29	0	3.9	0.325185	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.08	0.18	0.05	0.04	0.07	1.29	0.06	0.04	0.15	0.13	0.16	0.04	0.11	0.04	0.04	0.08	0.26	0.8	0.2				0.2
Naphthalene	0.05	45	0.04	0.8	0	3.7	0.136671	POTENTIALLY SUITABLE FOR USE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.1	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.05				0.05
Phenanthrene	0.05	45	0.03	2.09	0	200	0.453171	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.03	0.03	0.03	0.03	0.24	2.09	0.03	0.03	0.14	0.14	0.3	0.03	0.05	0.03	0.03	0.06	1.24	0.6	0.2				0.1
Pyrene	0.05	45	0.03	3.85	0	1000	0.83529	POTENTIALLY SUITABLE FOR USE	0.03	0.03	0.12	0.47	0.09	0.03	0.24	3.85	0.1	0.03	0.34	0.12	0.51	0.03	0.2	0.03	0.03	0.15	1.11	1.39	0.2				0.72
	Mean																																
FOC (dimensionless)	0.011								0.002	0.008	0.011			0.005				0.011				0.004	0.007		0.004				0.02	0.014	0.016	0.0036	0.032
SOM (calculated)	1.81%								0.34%	1.38%	1.90%			0.86%				1.90%				0.69%	1.21%		0.69%				3.45%	2.41%	2.76%	0.62%	5.52%
pH (su)	8.1								8.07	8.26	7.91	8.74	11.69	8.71	9.02	9.05	8.77	8	7.7	8.31	8.29	8.12	8.69	8.67	8.07	8.22	8.27	8.27	7.3	7.7	7.8	8.3	7.5

Risk parameter: **Human health - residential with plant uptake (2.5%SOM)**
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																								
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG		MG	MG	MG	MG	MG	MG
								Location & Depth	TPS-TP01	TPS-TP01	TPS-TP05	TPS-TP06	TPS-TP08	TPS-TP09	TPS-TP11	TPS-TP12	TPS-TP14	TPS-TP16	TPS-TP18	TPS-TP19	TPS-TP22	TPS-TP24	TPS-TP25	TPS-TP26	TPS-TP30	WYG-TP05	WYG-TP06	WYG-TP17	WYG-TP17	WYG-TP20	WYG-TP20
									0.2	0.8	1	0.5	0.3	0.3	1.1	0.2	0.2	0.1	0.3	0.3	0.2	0.4	0.5	0.5	0.3	0.5	0.5	0.5	1	0.5	1
Arsenic	1	48	2.8	17	0	250	11.88432	POTENTIALLY SUITABLE FOR USE	10	13	12	15	13	12	17	12	11	7.5	7.9	10	7.6	4.7	4.1	17	9.4	12.3	9.6	4.9	9.3	8.6	11.7
Boron	0.2	48	0.1	2.5	0	3	1.404009	POTENTIALLY SUITABLE FOR USE	1.6	2	1.1	0.6	1.1	0.9	0.8	1.9	1.7	2.5	0.4	1.6	2.2	0.2	0.2	0.5	0.2	0.8	1.4	1.7	2	1.7	0.7
Chromium (III)	1	48	8.4	119.1	0	400	40.71631	POTENTIALLY SUITABLE FOR USE	20.8	29.8	30.8	15.8	30.8	28.8	14.8	29.8	25.8	19.8	18.8	17.8	40.8	16.8	12.8	11.8	47.8	30	33.2	14	26	24.9	43.5
Chromium (VI)	1.2	48	0.3	4	0	25	1.705775	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.3	0.3	0.3	0.3	0.3	0.3
Copper	1	48	7	110	0	135	37.35128	POTENTIALLY SUITABLE FOR USE	26	25	27	25	31	28	35	37	36	28	35	32	31	16	17	110	27	35	7	10	22	17	21
Nickel	2	48	6.8	69.4	0	75	37.06019	POTENTIALLY SUITABLE FOR USE	26	32	34	19	37	33	17	39	31	22	16	20	28	18	13	18	24	32.2	24.7	16.7	30.4	23.7	46.3
Zinc	2	48	40	455	4	300	186.8923	POTENTIALLY SUITABLE FOR USE	85	120	88	62	180	150	41	87	160	140	130	100	130	51	40	49	120	117	78	56	105	419	83
	Mean																														
pH (su)	8.1								6.5	6.6	7.5	7.8	7.6	7.6	7.7	7.6	7.6	7.5	7.6	7.7	7.6	7.8	7.9	8	7.8	8.16	8.02	8.23	8.26	8.64	8.45

Risk parameter: Plant life pH 7
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
All values in mg/kg unless otherwise stated								Location & Depth	WYG-BH06	WYG-BH07	WYG-BH08	WYG-BH09	WYG-BH09	WYG-BH10	WYG-BH10	WYG-BH10	WYG-BH10	WYG-BH11	WYG-BH12	WYG-BH13	WYG-BH14	WYG-BH15	WYG-BH16	WYG-BH17	WYG-BH18	WYG-HDP2	WYG-HDP3	WYG-HDP4	ESI-TP01	ESI-TP02	ESI-TP03	ESI-TP04	ESI-TP27
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**US_{35}**	**Result of Significance Test**	**0.5**	**0.5**	**1**	**0.5**	**1**	**0.5**	**1**	**0.5**	**1**	**0.5**	**0.5**	**0.5**	**1**	**0.5**	**0.5**	**0.2**	**0.3**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**	**1**	**0.2**	
Arsenic	1	48	2.8	17	0	250	11.88432	POTENTIALLY SUITABLE FOR USE	6.5	12.2	11.6	12.9	2.8	7.1	9.2	4.8	3.1	11.1	9.7	11.9	11.7	9.4	9.7	11.9	11	10	9.6	12.2	9.2	10	12	7.6	8.8
Boron	0.2	48	0.1	2.5	0	3	1.404009	POTENTIALLY SUITABLE FOR USE	0.1	0.9	1.5	0.7	0.5	0.1	0.8	0.1	0.2	2.1	1.3	0.9	1.3	0.7	0.6	0.8	1.5	1.1	0.8	1.2	0.7	0.6	1.1	0.2	0.9
Chromium (III)	1	48	8.4	119.1	0	400	40.71631	POTENTIALLY SUITABLE FOR USE	9.3	39.7	35.6	29.4	119.1	16.7	45.2	14.7	8.4	50.7	37.5	15	32.7	45.9	36.2	39.6	55	23.3	26.1	38.9	26	28	29	16	23
Chromium (VI)	1.2	48	0.3	4	0	25	1.705775	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4	4	4	4	4
Copper	1	48	7	110	0	135	37.35128	POTENTIALLY SUITABLE FOR USE	42	14	30	70	10	14	30	10	8	17	24	44	30	26	25	24	14	23	24	24	16	16	40	18	21
Nickel	2	48	6.8	69.4	0	75	37.06019	POTENTIALLY SUITABLE FOR USE	11.8	37.7	40	37.5	8.5	18	26	8.5	6.8	43.9	39.8	27.5	33.6	69.4	39.6	59.7	54.4	24.5	29	44.1	25	27	28	19	27
Zinc	2	48	40	455	4	300	186.8923	POTENTIALLY SUITABLE FOR USE	44	85	86	455	74	60	147	74	45	109	116	327	123	95	107	117	94	132	390	122	130	140	290	93	93
	Mean																																
pH (su)	8.1								8.07	8.26	7.91	8.74	11.69	8.71	9.02	9.05	8.77	8	7.7	8.31	8.29	8.12	8.69	8.67	8.07	8.22	8.27	8.27	7.3	7.7	7.8	8.3	7.5

Risk parameter: **Plant life pH 7**
Data set: Area 2: Made Ground, WYG, ESI and Hydrock investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test				
								Soil Type	MG	MG	MG	MG
								Location & Depth	ESI-TP7	WYG-TP10	WYG-BH1	WYG-BH1
									0.2	0.5	0.5	1
Arsenic	1	4	7.8	10	0	79	10.92006	POTENTIALLY SUITABLE FOR USE	9.1	7.8	8.9	10
Beryllium	0.06	4	0.7	1.3	0	93	1.64833	POTENTIALLY SUITABLE FOR USE	0.7	1.1	1.3	1.2
Boron	0.2	4	0.2	1	0	21000	1.388	POTENTIALLY SUITABLE FOR USE	0.2	0.5	1	0.8
Cadmium	0.2	4	0.1	0.2	0	120	0.284	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.1	0.2
Chromium (III)	1	4	26	36.1	0	1500	39.53363	POTENTIALLY SUITABLE FOR USE	26	28.8	36.1	26.4
Chromium (VI)	1.2	4	0.3	4	0	7.7	5.258	POTENTIALLY SUITABLE FOR USE	4	0.3	0.3	0.3
Copper	1	4	13	23	0	12000	29.68596	POTENTIALLY SUITABLE FOR USE	18	13	23	23
Lead	2	4	33	64	0	630	76.06612	POTENTIALLY SUITABLE FOR USE	33	64	34	47
Mercury, inorganic	0.3	4	0.1	0.8	0	470	1.04528	POTENTIALLY SUITABLE FOR USE	0.3	0.1	0.1	0.8
Nickel	2	4	23.8	45.4	0	290	52.94963	POTENTIALLY SUITABLE FOR USE	30	23.8	45.4	33.4
Selenium	1	4	0.99	1	0	1400	1.0084	POTENTIALLY SUITABLE FOR USE	1	1	1	1
Vanadium	1	4	29	46	0	440	53.04177	POTENTIALLY SUITABLE FOR USE	29	30	38	46
Zinc	2	4	70	109	0	81000	125.1876	POTENTIALLY SUITABLE FOR USE	70	86	94	109
Cyanide (free)	1	3	0.50	0.5	0	1600	0.50112	POTENTIALLY SUITABLE FOR USE		0.50	0.5	0.5
Phenol (total)	2	3	0.01	0.01	0	3200	0.010112	POTENTIALLY SUITABLE FOR USE		0.01	0.01	0.01
Acenaphthene	0.05	3	0.01	0.01	0	15000	0.010112	POTENTIALLY SUITABLE FOR USE		0.01	0.01	0.01
Acenaphthylene	0.05	3	0.05	0.05	0	15000	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Anthracene	0.05	3	0.00	0.03	0	74000	0.060251	POTENTIALLY SUITABLE FOR USE		0.00	0.03	0.03
Benz(a)anthracene	0.05	3	0.05	0.05	0	17	0.050112	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Benzo(a)pyrene	0.05	3	0.06	0.06	0	2.6	0.060112	POTENTIALLY SUITABLE FOR USE		0.06	0.06	0.06
Benzo(b)fluoranthene	0.05	3	0.04	0.04	0	18	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Benzo(ghi)perylene	0.05	3	0.05	0.05	0	120	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	3	0.04	0.04	0	26	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Chrysene	0.05	3	0.02	0.02	0	25	0.020112	POTENTIALLY SUITABLE FOR USE		0.02	0.02	0.02
Dibenz(a,h)anthracene	0.05	3	0.02	0.02	0	2.3	0.020112	POTENTIALLY SUITABLE FOR USE		0.02	0.02	0.02
Fluoranthene	0.05	3	0.04	0.04	0	3100	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Fluorene	0.05	3	0.03	0.03	0	9900	0.030112	POTENTIALLY SUITABLE FOR USE		0.03	0.03	0.03
Indeno(1,2,3,cd)pyrene	0.05	3	0.04	0.04	0	11	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Naphthalene	0.05	3	0.04	0.04	0	3900	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Phenanthrene	0.05	3	0.04	0.04	0	3100	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Pyrene	0.05	3	0.03	0.03	0	7400	0.030112	POTENTIALLY SUITABLE FOR USE		0.03	0.03	0.03
	Mean											
FOC (dimensionless)	0.002								0.0019	0.002	0.003	
SOM (calculated)	0.40%								0.33%	0.34%	0.52%	
pH (su)	8.7								8.3	8.26	8.8	9.36

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: **Area 3: Made Ground, WYG and ESI investigations**
Client: **Lend Lease**
Site: **North Wales Prison, Wrexham**
Job no.: **C14656**

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test				
								Soil Type	MG	MG	MG	MG
								Location & Depth	ESI-TP7	WYG-TP10	WYG-BH1	WYG-BH1
									0.2	0.5	0.5	1
Arsenic	1	4	7.8	10	0	32	10.92006	POTENTIALLY SUITABLE FOR USE	9.1	7.8	8.9	10
Beryllium	0.06	4	0.7	1.3	0	51	1.64833	POTENTIALLY SUITABLE FOR USE	0.7	1.1	1.3	1.2
Boron	0.2	4	0.2	1	0	290	1.388	POTENTIALLY SUITABLE FOR USE	0.2	0.5	1	0.8
Cadmium	0.2	4	0.1	0.2	0	11	0.284	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.1	0.2
Chromium (III)	1	4	26	36.1	0	630	39.53363	POTENTIALLY SUITABLE FOR USE	26	28.8	36.1	26.4
Chromium (VI)	1.2	4	0.3	4	0	4.3	5.258	POTENTIALLY SUITABLE FOR USE	4	0.3	0.3	0.3
Copper	1	4	13	23	0	2300	29.68596	POTENTIALLY SUITABLE FOR USE	18	13	23	23
Lead	2	4	33	64	0	200	76.06612	POTENTIALLY SUITABLE FOR USE	33	64	34	47
Mercury, inorganic	0.3	4	0.1	0.8	0	170	1.04528	POTENTIALLY SUITABLE FOR USE	0.3	0.1	0.1	0.8
Nickel	2	4	23.8	45.4	0	130	52.94963	POTENTIALLY SUITABLE FOR USE	30	23.8	45.4	33.4
Selenium	1	4	0.99	1	0	350	1.0084	POTENTIALLY SUITABLE FOR USE	1	1	1	1
Vanadium	1	4	29	46	0	74	53.04177	POTENTIALLY SUITABLE FOR USE	29	30	38	46
Zinc	2	4	70	109	0	3700	125.1876	POTENTIALLY SUITABLE FOR USE	70	86	94	109
Cyanide (free)	1	3	0.50	0.5	0	750	0.50112	POTENTIALLY SUITABLE FOR USE		0.50	0.5	0.5
Phenol (total)	2	3	0.01	0.01	0	180	0.010112	POTENTIALLY SUITABLE FOR USE		0.01	0.01	0.01
Acenaphthene	0.05	3	0.01	0.01	0	210	0.010112	POTENTIALLY SUITABLE FOR USE		0.01	0.01	0.01
Acenaphthylene	0.05	3	0.05	0.05	0	170	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Anthracene	0.05	3	0.00	0.03	0	2300	0.060251	POTENTIALLY SUITABLE FOR USE		0.00	0.03	0.03
Benz(a)anthracene	0.05	3	0.05	0.05	0	3.1	0.050112	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Benzo(a)pyrene	0.05	3	0.06	0.06	0	0.83	0.060112	POTENTIALLY SUITABLE FOR USE		0.06	0.06	0.06
Benzo(b)fluoranthene	0.05	3	0.04	0.04	0	5.6	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Benzo(ghi)perylene	0.05	3	0.05	0.05	0	44	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	3	0.04	0.04	0	8.5	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Chrysene	0.05	3	0.02	0.02	0	6	0.020112	POTENTIALLY SUITABLE FOR USE		0.02	0.02	0.02
Dibenz(a,h)anthracene	0.05	3	0.02	0.02	0	0.76	0.020112	POTENTIALLY SUITABLE FOR USE		0.02	0.02	0.02
Fluoranthene	0.05	3	0.04	0.04	0	260	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Fluorene	0.05	3	0.03	0.03	0	160	0.030112	POTENTIALLY SUITABLE FOR USE		0.03	0.03	0.03
Indeno(1,2,3,cd)pyrene	0.05	3	0.04	0.04	0	3.2	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Naphthalene	0.05	3	0.04	0.04	0	1.5	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Phenanthrene	0.05	3	0.04	0.04	0	92	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Pyrene	0.05	3	0.03	0.03	0	560	0.030112	POTENTIALLY SUITABLE FOR USE		0.03	0.03	0.03
	Mean											
FOC (dimensionless)	0.002								0.0019	0.002	0.003	
SOM (calculated)	0.40%								0.33%	0.34%	0.52%	
pH (su)	8.7								8.3	8.26	8.8	9.36

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: **Area 3: Made Ground, WYG and ESI investigations**
Client: **Lend Lease**
Site: **North Wales Prison, Wrexham**
Job no.: **C14656**

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test				
								Soil Type	MG	MG	MG	MG
								Location & Depth	ESI-TP7	WYG-TP10	WYG-BH1	WYG-BH1
									0.2	0.5	0.5	1
Arsenic	1	4	7.8	10	0	640	10.92006	POTENTIALLY SUITABLE FOR USE	9.1	7.8	8.9	10
Beryllium	0.06	4	0.7	1.3	0	420	1.64833	POTENTIALLY SUITABLE FOR USE	0.7	1.1	1.3	1.2
Boron	0.2	4	0.2	1	0	190000	1.388	POTENTIALLY SUITABLE FOR USE	0.2	0.5	1	0.8
Cadmium	0.2	4	0.1	0.2	0	230	0.284	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.1	0.2
Chromium (III)	1	4	26	36.1	0	8800	39.53363	POTENTIALLY SUITABLE FOR USE	26	28.8	36.1	26.4
Chromium (VI)	1.2	4	0.3	4	0	35	5.258	POTENTIALLY SUITABLE FOR USE	4	0.3	0.3	0.3
Copper	1	4	13	23	0	72000	29.68596	POTENTIALLY SUITABLE FOR USE	18	13	23	23
Lead	2	4	33	64	0	2330	76.06612	POTENTIALLY SUITABLE FOR USE	33	64	34	47
Mercury, inorganic	0.3	4	0.1	0.8	0	3600	1.04528	POTENTIALLY SUITABLE FOR USE	0.3	0.1	0.1	0.8
Nickel	2	4	23.8	45.4	0	1800	52.94963	POTENTIALLY SUITABLE FOR USE	30	23.8	45.4	33.4
Selenium	1	4	0.99	1	0	13000	1.0084	POTENTIALLY SUITABLE FOR USE	1	1	1	1
Vanadium	1	4	29	46	0	3200	53.04177	POTENTIALLY SUITABLE FOR USE	29	30	38	46
Zinc	2	4	70	109	0	670000	125.1876	POTENTIALLY SUITABLE FOR USE	70	86	94	109
Cyanide (free)	1	3	0.50	0.5	0	16000	0.50112	POTENTIALLY SUITABLE FOR USE		0.50	0.5	0.5
Phenol (total)	2	3	0.01	0.01	0	3200	0.010112	POTENTIALLY SUITABLE FOR USE		0.01	0.01	0.01
Acenaphthene	0.05	3	0.01	0.01	0	85000	0.010112	POTENTIALLY SUITABLE FOR USE		0.01	0.01	0.01
Acenaphthylene	0.05	3	0.05	0.05	0	84000	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Anthracene	0.05	3	0.00	0.03	0	520000	0.060251	POTENTIALLY SUITABLE FOR USE		0.00	0.03	0.03
Benz(a)anthracene	0.05	3	0.05	0.05	0	89	0.050112	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Benzo(a)pyrene	0.05	3	0.06	0.06	0	14	0.060112	POTENTIALLY SUITABLE FOR USE		0.06	0.06	0.06
Benzo(b)fluoranthene	0.05	3	0.04	0.04	0	100	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Benzo(ghi)perylene	0.05	3	0.05	0.05	0	650	0.05	POTENTIALLY SUITABLE FOR USE		0.05	0.05	0.05
Benzo(k)fluoranthene	0.05	3	0.04	0.04	0	140	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Chrysene	0.05	3	0.02	0.02	0	140	0.020112	POTENTIALLY SUITABLE FOR USE		0.02	0.02	0.02
Dibenz(a,h)anthracene	0.05	3	0.02	0.02	0	13	0.020112	POTENTIALLY SUITABLE FOR USE		0.02	0.02	0.02
Fluoranthene	0.05	3	0.04	0.04	0	23000	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Fluorene	0.05	3	0.03	0.03	0	64000	0.030112	POTENTIALLY SUITABLE FOR USE		0.03	0.03	0.03
Indeno(1,2,3,cd)pyrene	0.05	3	0.04	0.04	0	60	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Naphthalene	0.05	3	0.04	0.04	0	200	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Phenanthrene	0.05	3	0.04	0.04	0	22000	0.040112	POTENTIALLY SUITABLE FOR USE		0.04	0.04	0.04
Pyrene	0.05	3	0.03	0.03	0	54000	0.030112	POTENTIALLY SUITABLE FOR USE		0.03	0.03	0.03
	Mean											
FOC (dimensionless)	0.002								0.0019	0.002	0.003	
SOM (calculated)	0.40%								0.33%	0.34%	0.52%	
pH (su)	8.7								8.3	8.26	8.8	9.36

Risk parameter: **Human health - commercial (1%SOM)**
Data set: **Area 3: Made Ground, WYG and ESI investigations**
Client: **Lend Lease**
Site: **North Wales Prison, Wrexham**
Job no.: **C14656**

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test													
								Soil Type	MG	MG	MG	MG									
								Location & Depth	ESI-TP7	WYG-TP10	WYG-BH1	WYG-BH1									
									0.2	0.5	0.5	1									
Arsenic	1	4	7.8	10	0	250	10.92006	POTENTIALLY SUITABLE FOR USE	9.1	7.8	8.9	10									
Boron	0.2	4	0.2	1	0	3	1.388	POTENTIALLY SUITABLE FOR USE	0.2	0.5	1	0.8									
Chromium (III)	1	4	26	36.1	0	400	39.53363	POTENTIALLY SUITABLE FOR USE	26	28.8	36.1	26.4									
Chromium (VI)	1.2	4	0.3	4	0	25	5.258	POTENTIALLY SUITABLE FOR USE	4	0.3	0.3	0.3									
Copper	1	4	13	23	0	135	29.68596	POTENTIALLY SUITABLE FOR USE	18	13	23	23									
Nickel	2	4	23.8	45.4	0	75	52.94963	POTENTIALLY SUITABLE FOR USE	30	23.8	45.4	33.4									
Zinc	2	4	70	109	0	300	125.1876	POTENTIALLY SUITABLE FOR USE	70	86	94	109									
	Mean																				
pH (su)	8.7								8.3	8.26	8.8	9.36									

Risk parameter: Plant life pH 7
Data set: Area 3: Made Ground, WYG and ESI investigations
Client: Lend Lease
Site: North Wales Prison, Wrexham
Job no.: C14656

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Appendix C

Asbestos Testing Results

REC
Resource & Environmental Consultants (Asbestos) Ltd
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Manchester
9 Hadfield Street
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M16 9FE
T. 0161 868 1300
F. 0161 868 1301

UKAS TESTING
2520

Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4625

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridges St

Customer Order No	
Samples Submitted By	Client
Sampled By	Client
No. of Samples Submitted	5
Date Samples Submitted	26/09/2014
Date Samples Analysed	29/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	A3N	Soil		No Asbestos Detected	<0.001	Screen Only
2	A3S	Soil		Chrysotile	<0.001	Screen Only
3	A3E	Soil		Chrysotile	<0.001	Screen Only
4	A3W	Soil		No Asbestos Detected	<0.001	Screen Only
5	A3C	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4545

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridges St

Customer Order No	Non supplied
Samples Submitted By	Client
Sampled By	Client
No. of Samples Submitted	32
Date Samples Submitted	23/09/2014
Date Samples Analysed	26/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	HYD-ASB08@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
2	HYD-ASB09@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
3	HYD-ASB09@1.00m	Soil		Chrysotile	<0.001	Stage 3
4	HYD-ASB14@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
5	HYD-ASB12@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
6	HYD-ASB12@0.50m	Soil		Chrysotile	<0.001	Stage 3
7	HYD-ASB12@2.00m	Soil		No Asbestos Detected	<0.001	Screen Only
8	HYD-ASB13@0.30m	Soil		No Asbestos Detected	<0.001	Screen Only

9	HYD-ASB10@0.80m	Soil		No Asbestos Detected	<0.001	Screen Only
10	HYD-ASB10@1.80m	Soil		No Asbestos Detected	<0.001	Screen Only
11	HYD-ASB11@0.40m	Soil		No Asbestos Detected	<0.001	Screen Only
12	HYD-ASB13@1.10m	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4545

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridges St

Customer Order No	Non supplied
Samples Submitted By	Client
Sampled By	Client
No. of Samples Submitted	32
Date Samples Submitted	23/09/2014
Date Samples Analysed	26/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

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Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	HYD-ASB21@0.50m	Soil		No Asbestos Detected	<0.001	Screen Only
2	HYD-ASB20@0.05m	Soil		Chrysotile	<0.001	Stage 3
3	HYD-ASB20@0.40m	Soil		Chrysotile	<0.001	Stage 3
4	HYD-ASB19@0.40m	Soil		No Asbestos Detected	<0.001	Screen Only
5	HYD-ASB19@0.80m	Soil		No Asbestos Detected	<0.001	Screen Only
6	HYD-ASB18@0.20m	Soil		No Asbestos Detected	<0.001	Screen Only
7	HYD-ASB18@0.70m	Soil		No Asbestos Detected	<0.001	Screen Only
8	HYD-ASB17@0.30m	Soil		No Asbestos Detected	<0.001	Screen Only

9	HYD-ASB17@0.70m	Soil		No Asbestos Detected	<0.001	Screen Only
10	HYD-ASB16@0.50m	Soil		No Asbestos Detected	<0.001	Screen Only
11	HYD-ASB15@0.20m	Soil		No Asbestos Detected	<0.001	Screen Only
12	HYD-ASB15@0.80m	Soil		No Asbestos Detected	<0.001	Screen Only
13	HYD-ASB01@0.10m	Soil		Amosite Chrysotile	0.014	Stage 2
14	HYD-ASB01@0.30m	Soil		No Asbestos Detected	<0.001	Screen Only
15	HYD-ASB04@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
16	HYD-ASB03@0.50m	Soil		No Asbestos Detected	<0.001	Screen Only
17	HYD-ASB05@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
18	HYD-ASB07@0.10m	Soil		No Asbestos Detected	<0.001	Screen Only
19	HYD-ASB07@0.50m	Soil		No Asbestos Detected	<0.001	Screen Only
20	HYD-ASB06@1.00m	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4498

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridges St

Customer Order No	JD190914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	4
Date Samples Submitted	22/09/2014
Date Samples Analysed	24/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	HYD-Z2A	Soil		Amosite	0.001	Stage 3
2	HYD-Z2B	Soil		No Asbestos Detected	<0.001	Screen Only
3	HYD-Z2C	Soil		No Asbestos Detected	<0.001	Screen Only
4	HYD-Z2D	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4497

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridges St

Customer Order No	JD180914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	4
Date Samples Submitted	22/09/2014
Date Samples Analysed	24/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	HYD-Z3A	Soil		No Asbestos Detected	<0.001	Screen Only
2	HYD-Z3B	Soil		Chrysotile	<0.001	Stage 3
3	HYD-Z3C	Soil		Chrysotile	<0.001	Stage 3
4	HYD-Z3D	Soil		Chrysotile	<0.001	Stage 3

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Certificate of Analysis for Bulk Identification

Job No. **14MANB** 4496

Customer Address

Hydrock Contracting Ltd

Site Address

HMP Wrexham, Bridge St

Customer Order No	14MANS4259
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	6
Date Samples Submitted	22/09/2014
Date Samples Analysed	24/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Analyst / Authorised Signature	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 / Bulk Analysis Procedures. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Where this document has been digitally signed, printed copies are uncontrolled.

Samp No	Origin / Location of Material	Material Type	Asbestos Type(s)	Comments
1	A3S	Asbestos Cement	Chrysotile	
2	D4E	Asbestos Cement	Chrysotile	
3	D5C	Asbestos Cement	Chrysotile	
4	D5S	Cement	No Asbestos Detected	
5	C5C	Asbestos Cement	Chrysotile	
6	HYD-TP03	Asbestos Cement	Chrysotile	

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4483

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridge St

Customer Order No	JD180914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	2
Date Samples Submitted	19/09/2014
Date Samples Analysed	22/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	A66th	Soil		Amosite	<0.001	Stage 3
2	A56th	Soil		Amosite	0.001	Stage 3

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4481

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridge St

Customer Order No	JD180914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	3
Date Samples Submitted	19/09/2014
Date Samples Analysed	22/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	D56th	Soil		No Asbestos Detected	<0.001	Screen Only
2	D66th	Soil		No Asbestos Detected	<0.001	Screen Only
3	C6th	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4480

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridge St

Customer Order No	JD180914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	3
Date Samples Submitted	19/09/2014
Date Samples Analysed	22/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

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Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	B46th	Soil	AC	Chrysotile	0.001	Stage 3
2	C46th	Soil		Chrysotile	0.001	Stage 3
3	D46th	Soil		No Asbestos Detected	<0.001	Screen Only

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UKAS TESTING
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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4479

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridge St

Customer Order No	JD120914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	4
Date Samples Submitted	19/09/2014
Date Samples Analysed	22/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	B26th	Soil		No Asbestos Detected	<0.001	Screen Only
2	B36th	Soil		No Asbestos Detected	<0.001	Screen Only
3	A36th	Soil	Lagging	Amosite	0.002	Stage 3
4	A46th	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4478

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham, Bridge St

Customer Order No	JD170914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	3
Date Samples Submitted	19/09/2014
Date Samples Analysed	22/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	B66th	Soil		No Asbestos Detected	<0.001	Screen Only
2	B56th	Soil		No Asbestos Detected	<0.001	Screen Only
3	C56th	Soil		Chrysotile	0.002	Stage 3

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4367

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham

Customer Order No	JD120914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	4
Date Samples Submitted	16/09/2014
Date Samples Analysed	17/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

REC (Asbestos) Ltd. accepts no responsibility for sampling activities undertaken by the client. Analysis is conducted in accordance with HSG 248 and documented in house procedures for soil analysis and quantification. Where soil analysis requires the taking of representative sub samples, the cone and quarter technique is used as described in Bulk Analysis Procedures. The material description shall be regarded as tentative and is not included in the UKAS Accreditation for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. NAD = No Asbestos Detected. Where this document has been digitally signed, printed copies are uncontrolled. Uncertainty of measurement has been calculated in line with current available reference data . Uncertainty of measurement may increase with samples of clay soil type and loose chrysotile. AC = Asbestos Cement. AIB = Asbestos Insulation Board. The contribution of fine fibres analysed at Stage 3 can be up to 0.050%. Where a positive result at Stage 2 is reported but Stage 3 analysis is not requested, clients are advised that the Stage 3 contribution could take the overall concentration above the point of interest

Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	A26th	Soil		No Asbestos Detected	<0.001	Screen Only
2	A16th	Soil		Amosite	<0.001	Stage 3
3	B16th	Soil		No Asbestos Detected	<0.001	Screen Only
4	C16th	Soil		No Asbestos Detected	<0.001	Screen Only

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UKAS TESTING
2520

Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4366

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham

Customer Order No	JD090914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	4
Date Samples Submitted	16/09/2014
Date Samples Analysed	17/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

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Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	HYD-A2A	Soil		Chrysotile	0.001	Stage 3
2	HYD-A2B	Soil		Chrysotile	0.010	Stage 2
3	HYD-A2C	Soil		No Asbestos Detected	<0.001	Stage 3
4	HYD-A2D	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4365

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham

Customer Order No	JD080914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	4
Date Samples Submitted	16/09/2014
Date Samples Analysed	17/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

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Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	HYD-A3A	Soil		Chrysotile	<0.001	Stage 3
2	HYD-A3B	Soil	Lagging	Amosite	0.010	Stage 2
3	HYD-A3C	Soil		Amosite	<0.001	Stage 3
4	HYD-A3D	Soil		No Asbestos Detected	<0.001	Screen Only

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Certificate of Analysis for Quantification of Asbestos in Soil / Aggregate

Job No 14MANB4364

Customer Address	*Site Address*
Hydrock Contracting Ltd	HMP Wrexham

Customer Order No	JD100914
Samples Submitted By	JD
Sampled By	JD
No. of Samples Submitted	5
Date Samples Submitted	16/09/2014
Date Samples Analysed	17/09/2014
Samples Analysed In	Manchester
Samples Analysed By	Catherine Urhegyi
Stage 3 Slides Analysed By	Catherine Urhegyi
Analyst / Authorised Signatures	

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Samp No	Origin / Location of Material / Depth	Material Type	ACMs Identified	Asbestos Type(s) Identified	Overall Mass Percentage of Asbestos	Level of Analysis Conducted
1	D16th	Soil		Chrysotile	<0.001	Stage 3
2	D26th	Soil		Chrysotile	<0.001	Stage 3
3	D36th	Soil		No Asbestos Detected	<0.001	Screen Only
4	C36th	Soil		No Asbestos Detected	<0.001	Screen Only
5	C26th	Soil		Chrysotile	0.001	Stage 3